# (24,931)

## SUPREME COURT OF THE UNITED STATES.

**OCTOBER TERM, 1915.**

## No. 648.

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J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS, APPELLANTS,

*vs.*

SIDNEY E. BOYLE, AS ADMINISTRATOR OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND THE ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY.

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APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF ARKANSAS.

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a *Transcript of Record on Appeal from the District Court of the United States for the Western Division of the Eastern District of Arkansas in the Case of*

J. SAM ROWLAND, WILLIAM F. MCKNIGHT, and THOMAS E. WOOD, Railroad Commissioners of the State of Arkansas, et al., Appellants,

against

SIDNEY E. BOYLE, etc., Appellee.

Mr. Joseph M. Hill, of Ft. Smith, Arkansas, for Appellants.
Mr. John M. Moore, of Moore, Smith & Moore, of Little Rock, Arkansas, for Appellee.

1 In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

In Equity.

Be it remembered, that on the Eighteenth day of July, A. D. 1908, came into the office of the Clerk of the Circuit Court of the United States for the Western Division of the Eastern District of Arkansas, Wilbur F. Boyle, by Moore, Smith and Moore, Esqs., his solicitors, and filed therein his Original Bill against St. Louis and San Francisco Railroad Company, and R. P. Allen, John W. Crockett, and John E. Hampton, Railroad Commissioners of the State of Arkansas, and W. W. Dickinson and T. H. Bunch, which Original Bill is in words and figures as follows, to-wit:

2 In the Circuit Court of the United States for the Western Division of the Eastern District of Arkansas.

In Chancery.

WILBUR F. BOYLE, Complainant,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY and R. P. Allen, John W. Crockett, and J. E. Hampton, Railroad Commissioners of the State of Arkansas, and W. W. Dickinson and T. H. Bunch, Defendants.

*Original Bill.*

To the Honorable Judges of the Circuit Court of the United States for said District:

Your orator, Wilbur F. Boyle, exhibits this his bill of complaint against the St. Louis & San Francisco Railroad Company, and R. P.

Allen, John W. Crockett, and J. E. Hampton, as members of and constituting the Railroad Commission of the State of Arkansas, and thereupon alleges:

## I.

Your orator is a citizen of the State of Missouri and a resident of the city of St. Louis in said State. The defendants, R. P. Allen, John W. Crockett and J. E. Hampton, are citizens and residents of the State of Arkansas and constitute the Railroad Commission of said State. Said John W. Crockett and J. E. Hampton reside in said District; said R. P. Allen resides at Van Buren, in Crawford County, in the Western Judicial District of said State.

The act of the Legislature of said State under which said Commission was created, which is hereinafter more particularly referred to, fixes and establishes its domicile at the city of Little Rock, in the county of Pulaski, in said State, and in the Western Division of the Eastern Judicial District thereof.

The defendants, W. W. Dickinson and T. H. Bunch are citizens and residents of Pulaski County, Arkansas, and both of them reside in the Western Division of the Eastern District of said State. Said defendants (who are hereinafter designated as shippers) are each engaged in shipping over your orator's road and other roads in said State, to and from points therein, commodities, the rates on which are attempted to be limited in the manner hereinafter set forth. They are also in the habit of traveling on your orator's passenger trains between stations in said State. Said defendants represent a class of shippers and passengers so numerous that it is impracticable to attempt to join them all, and the above named are made parties hereto for the purpose of determining the rights of all shippers and passengers under the legislation of the State of Arkansas, and the act of said Railroad Commission hereinafter referred to.

3 The defendant, St. Louis and San Francisco Railroad Company, is now and has been for several years last past a railroad corporation duly organized and existing under the laws of Missouri, with its principal office therein, and a citizen and resident thereof, and was during all of said times, and is now, authorized to do business in the State of Arkansas. It is now, and has been for several years last past, a common carrier of goods and passengers in state and inter-state commerce, owning, maintaining and operating lines of railroad in the States of Arkansas, Missouri, Kansas, Tennessee, Mississippi, Alabama, and Oklahoma. Its system of roads, including its main lines and branches, is about five thousand (5,000) miles in length. All of said railroads constitute, and have for many years constituted one system, and are and have been during all of said time operated and maintained as one system.

The principal business of said railroad company consists of inter-state commerce, and it is a carrier of such commerce, subject, as your orator is advised and believes, and so charges, to the sole control and supervision of the United States. That the lines of said railroad company so owned, operated and maintained by it and used in State and inter-state commerce, and being a part of said system,

which are now and have been as aforesaid operated as one system, in the State of Arkansas, are as follows:

(*a*) A main line of railroad extending from the State line between the States of Arkansas and Missouri, at a point near Garfield, a station on said road, to Fort Smith, Arkansas, through the counties of Benton, Washington, Crawford, and Sebastian, being 101 miles in length, and from Fort Smith to Jensen, in Sebastian County in said State, being 10.94 miles in length.

(*b*) A branch line of railroad connecting with the said main line at Rogers, Ark., extending thence to Southwest City, in said State, through Benton County, being 33.53 miles in length.

(*c*) A branch line of railroad connecting with said main line at Fayette Junction, Arkansas, extending thence east to Pettigrew, through the counties of Washington and Madison, being 41.32 miles in length.

(*d*) A branch line of railroad connecting with said main line at Fayetteville, in the State of Arkansas, extending thence westwardly to Summers, Arkansas, a station on said railroad, through Washington County, being 29.46 miles in length.

(*e*) A branch line of railroad connecting with said main line at Jensen, in the State of Arkansas, extending southeastwardly to Mansfield, in said State, through Sebastian County, being 18.28 miles in length.

(*f*) A branch line of railroad connecting with said main line at Hugo, in the State of Oklahoma, and extending in the State of Arkansas from Arkinda, at the State line between the States of Arkansas and Oklahoma, to the town of Hope, in said State, through the counties of Little River and Hempstead, being 55.70 miles in length.

(*g*) A main line of railroad extending from the line dividing the States of Arkansas and Missouri, at a point near the station of Thayer, in the State of Missouri, to Bridge Junction, on the western bank of the Mississippi River, through the counties of Fulton, Sharp, Lawrence, Poinsett, and Crittenden, being 140.83 miles in length.

(*h*) A branch line of railroad connecting with said main line at Bonnerville, Arkansas, extending southwestwardly to Newport, in said State, through the counties of Craighead and Jackson, being 35.75 miles in length.

(*i*) A branch line of railroad connecting with said main line at Tyronza Junction, extending in a northeastwardly direction through Poinsett County, being 11.41 miles in length.

(*j*) A branch line of railroad connecting with said main line at Deckerville, in the State of Arkansas, and running thence northeast to the State line between the States of Arkansas and Missouri near Yarborough, a station on said line of railroad in the State of Arkansas, being 53.51 miles in length, in Poinsett and Mississippi counties in said State.

(*k*) A branch line of railroad connecting with said branch at Evadale Junction and extending thence in a southwesterly direction through Mississippi and Crittenden counties, connecting with said

main line at Big Creek, a station thereon, being 16.51 miles in length.

4 (*l*) A main line extending from the line dividing the States of Missouri and Arkansas at a point near Success, a station on said railroad in the State of Arkansas, to Hoxie, Arkansas, through the counties of Clay, Green and Lawrence, being 39.61 miles in length.

(*m*) A branch line of railroad connecting with said main line in the State of Missouri, and extending from the line dividing the States of Arkansas and Missouri at a point near Boynton, a station on the line of said branch, in the State of Arkansas, through Mississippi County to Leachville, in said State, being 4.10 miles in length.

## II.

This cause arises under the Constitution and laws of the United States, for that your orator seeks to enjoin and restrain said St. Louis and San Francisco Railroad Company from observing or complying with the rates, rules, orders and regulations of the Railroad Commission of the State of Arkansas, and the acts of the Legislature of said State hereinafter mentioned and set forth, and to enjoin and restrain said defendants and other defendants herein, and each of them, from attempting in any manner to enforce the aforesaid rates, rules, regulations, orders or provisions of said statutes, or either or any of them, or from instituting, or causing to be instituted any action or proceeding against said St. Louis and San Francisco Railroad Company, its officers, directors, agents, or employes, on account of any violation of any of the aforesaid rates, rules, regulations or orders, or of the aforesaid statutes of said State, as being violative of the provisions of the Constitution of the United States and the Amendments thereto, and contrary to the laws of the United States as hereinafter more particularly set forth. The matter and amount in dispute in this suit exceeds, exclusive of interest and costs, the sum and value of $2,000.00.

## III.

Your orator alleges that said Railroad Commission was created by an act of the Legislature of the State of Arkansas, approved March 11, 1899, entitled:

"An Act to provide for the regulation of railroad freight and passenger traffic, in this State, to prevent unjust discrimination by extortion in the rates charged for transportation of passengers and freights, and to prohibit railroad companies, corporations and lessees in this State from charging other than just and reasonable rates, and to punish the same, and to prescribe the mode of procedure and rules of evidence in relation thereto, and to appoint commissioners and to prescribe rules for their government, and define their powers and duties in relation to the same," and acts supplemental to and amendatory thereof. Said acts invest in said Railroad Commission the power and impose upon it the duty to make and put in effect

reasonable and just rates of freight, express and passenger tariffs, to be observed by all persons and corporations operating any railroad or engaged in transporting persons or property in said State, and to make just and reasonable rates of freight, express and passenger traffic on connecting railroads operated by different and independent companies or corporations between stations within said State, to be observed by all persons, companies or corporations operating connecting railroads within the State, and if two or more connecting lines of railroad in said State shall fail to agree upon the division of charges arising from transportation of freights, passengers or cars over their lines, said commission is authorized to make the division and fix the pro rata part of such charges to be received by each of said connecting lines.

Your orator further alleges that on the 15th day of July, 1904, the predecessors of defendants, the then acting Railroad Commissioners of said State, assuming to act under the authority of the aforesaid provisions of the statutes of said State, promulgated Standard Freight Distance Tariff No. 2, prescribing freight rates and charges applicable to classes and commodities between all stations in said State, on all railroads operated therein subject to western classifications as adjusted to traffic in said State. The rates therein prescribed were continued in force, with certain amendments thereof made and promulgated by said commission from time to time, until June 4, 1908, when said defendants, acting in their official capacity, adopted Standard Freight Distance Tariff No. 3, applying on classes and commodities between all railroad stations in said State, subject to western classifications as adjusted to traffic therein, canceling Standard Freight Distance Tariff No. 2 aforesaid, and ordered that the same take effect on June 15, 1908. Said tariff contains many of the rates and regulations that were contained in Standard Freight Distance Tariff No. 2, as aforesaid, and the changes and amendments made therein by said commission since said Tariff No. 2 was promulgated, and other changes in rates on classes and commodities made in the order of said commission adopted on June 4, 1908. A copy of said Standard Freight Distance Tariff No. 3 is herewith filed as Exhibit "A" and made a part hereof.

## IV.

Your orator further represents that by an act of the Legislature of the State of Arkansas, approved the 9th day of February, 1907, entitled, "An Act to Amend Section 6311 of Kirby's Digest of the Statutes of the State of Arkansas, by Fixing Passenger Rates in this State, and for Other Purposes," it is provided that the maximum sum which any corporation or person operating a line of railroad in this State shall be authorized to charge for carrying each first-class passenger over such line within the State shall be fixed at five cents per mile on lines of railroad fifteen miles or less in length, three cents per mile on lines of railroad over fifteen and less than eighty-five miles in length, and two cents per mile on all lines of railroad over eighty-five miles in length; and for carrying chil-

dren between the ages of five and twelve years in charge of adults, one-half the rates above named, and for such children as are under the age of five years; that no charge whatever shall be made beyond what is collected from the adults having them in charge. It was further provided that said act should take effect and be in force sixty days after its passage. Said act was passed for the purpose of amending, and is an amendment to Section 6611 of Kirby's Digest of the Statutes of said State.

That on May 15, 1907, the defendants, acting as Railroad Commissioners for said State, made and promulgated an order putting said rates into effect. A copy of said order appears on page 39 of Exhibit "A" hereto.

V.

Your orator shows that at the present time said Railroad Company, as your orator is advised and believes, and so charges, in obedience to the rules, regulations and orders of said Railroad Commission and the aforesaid act of the Legislature of the State of Arkansas, and solely for the purpose of protecting itself against the many and onerous penalties hereinafter mentioned, is charging and collecting the rates for the transportation of freight and passengers prescribed in the schedules adopted by said commission as aforesaid, and by the aforesaid statute, over its lines of railroad in the State of Arkansas, and between stations therein, to the great and irreparable damage and loss of said Company and your orator.

VI.

Your orator alleges that the rates and fares contained in the aforesaid schedules adopted and promulgated by said Railroad Commission as Standard Freight Distance Tariff No. 3, and by the provisions of the aforesaid statute for the carriage of passengers, are unjust, unreasonably low and confiscatory in their nature, and will not make any return on the investment in the property of said Railroad Company in the State of Arkansas. Taking the gross receipts from all the State business of whatsoever kind, said Railroad Company does, can or will do in Arkansas, and deducting from the total receipts the cost of doing such business in the State of Arkansas, there will not be sufficient to pay operating expenses and taxes, and leave any sum as profit or as a return upon the value of the railroad and property of said Railroad Company devoted to the use of such business in the State of Arkansas. The rates and fares fixed by said commission as aforesaid and by the aforesaid statute for the classes of freight embraced in said schedules and for the carriage of passengers, are not and have not been sufficient to pay the cost of carrying and transporting the same, notwithstanding your orator is exercising and has exercised as great a degree of economy in the use and operation of said property as is compatible with the interest of the public and with safe and efficient service to the public, only employing such officers, agents and employes and expending such amounts in maintenance and repair
6 of its property as were necessary and essential to the due and proper operation of its trains, and to the maintenance of

said property with due regard to its preservation and the safety of the public.

Your orator avers that each and all of the charges and rates prescribed in said tariff No. 3 aforesaid as well as in the preceding tariff No. 2, are unreasonably low, and are unjust in that they do not adequately compensate said St. Louis and San Francisco Railroad Company for the services required to be rendered in transporting freight between stations on the railroad of said company in the State of Arkansas, and the returns and earnings of said railroad for the transportation of freight in said State are not and will not be sufficient to pay the operating expenses of said Railroad Company's lines of railroad in said State, and for the necessary repairs and maintenance thereof and the taxes thereon, and leave a sufficient surplus to pay a reasonable return, or any return, upon the value of the property of said Railroad Company used in said transportation in said State, and that thereby said Company and your orator will each be deprived of their property without due process of law, and said Railroad Company and your orator will be denied the equal protection of the law, all of which is contrary to and in violation of the Constitution of the United States and particularly of Section 1 of the 14th Amendment thereto.

Your orator further avers that the rates for the transportation of passengers prescribed by the said act of the Legislature of the State of Arkansas, and by the aforesaid order of said commission, will not be sufficient to compensate said St. Louis and San Francisco Railroad Company for services rendered in the transportation of passengers in said State.

That prior to the passage of the aforesaid statute and promulgation of the aforesaid order by said Railroad Commission, said Railroad Company and all other railroads in said State operating lines over seventy-five miles in length charged three cents per mile for the transportation of adults between all stations on its and their lines of railroad, and half fare for children under twelve and over five years of age. That the gross receipts from carrying passengers on the lines of the St. Louis and San Francisco Railroad Company between stations in said State at the rate of three cents per mile aforesaid, after deducting therefrom the cost of conducting said business in the State, were not sufficient to leave any adequate and reasonable return or profit upon the value of the property used in and about said business, or the services rendered the public. And your orator charges that under the rates prescribed by the aforesaid statute and order of said commission, reducing passenger fares to two cents per mile for adults and one cent per mile for children under twelve and over five years of age, the revenues of said Railroad Company derived from its passenger business in the State of Arkansas have not been and will not be sufficient to pay the cost of doing said business, including necessary repairs and maintenance of the property used therein, and taxes thereon, and leave any return upon the value of the property of said Railroad Company used in said transportation in said State, and that thereby said Railroad Company and your orator will each be deprived of their

property without due process of law, and will be denied the equal protection of the law, all of which is contrary to and in violation of the provision of the Constitution of the United States, and particularly of Section I of the 14th Amendment thereto.

## VII.

Your orator alleges that the St. Louis and San Francisco Railroad Company transports over its lines of railroad in Arkansas a large amount of timber and timber products; that at least ninety per cent. of said tonnage is shipped from points in said State to points in other States and is interstate commerce. Under the universal practice prevailing among shippers and railroad companies in said State, where the timber is situated at a distance from the mills, it is transported by rail and concentrated at milling points for the purpose of being converted into lumber and other products, and takes the prevailing rate under interstate shipments from the point at which the shipment of the rough material originated in said State to the destination of the mill product in other States; that said milling privilege in transit does not effect the interstate character of said shipments, but is an incident only in the interstate movement. The practice of all the railroads in the State engaged in the transportation of that commodity was, prior to April 1, 1907, to collect from the shipper the local rate from the place at which
7 the shipment originated to the milling or concentration point. After the product had been milled and shipped to market the regular interstate rate from the point of origin to the point of destination was applied, allowing the shipper the difference between the local and through rate between the stations at which the rough material was received and the point of concentration. All shipments of rough material and the several products thereof, viz., lumber, staves, bolts, spokes, handles, hoops, hubs, boat oars, furniture, etc., took that course. On April 1, 1907, said commission, recognizing the aforesaid practice and for the purpose of regulating the same, made an order that the following rates should apply on the shipment of rough lumber, staves, flitches, bolts, and logs, in car loads, between all points in Arkansas, viz.: For a distance of from—

1 to 50 miles, inclusive, 2 cents per cwt.
51 to 100 miles, inclusive, 2½ cents per cwt.
101 to 150 miles, inclusive, 3½ cents per cwt.
151 to 250 miles, inclusive, 5 cents per cwt.
250 miles and over, 8 cents per cwt.

Said rates are made upon condition expressed in said order that the manufactured product shall be reshipped over the same line bringing in the rough material. Said order further provided that carriers would be allowed to require consignees desiring to avail themselves of the benefit of said rates to enter into contracts with reference to the reshipment of the finished product under the rules prescribed by said commission, and your orator avers that said order of the commission was made with the direct intent and purpose of establishing, regulating and fixing interstate rates on such ma-

terial and commodities, by the device of establishing rates applicable between the point of origin of the rough material and the point of concentration for milling purposes, and intending and requiring that such rates should be applied to all shipments of such material from the point of origin in said State to the point of destination in other States; and your orator avers that such order is a direct interference with interstate commerce over which said commission has no jurisdiction and is, for that reason, unlawful and void. Orator further avers that the aforesaid rates are unreasonable and oppressive, because they do not afford the carriers any compensation whatever for the service rendered in connection with the transportation of said commodities, and are therefore confiscatory, and take the property of said Railroad Company and other carriers in said State without compensation, and are in violation of Section 1 of the Fourteenth Amendment of the Constitution of the United States, prohibiting the taking of property without due process of law and without compensation, and guaranteeing to all persons the equal protection of the laws.

## VIII.

Your orator alleges that cotton is the principal agricultural product of the State of Arkansas; that practically the entire crop raised in the State each year is shipped to markets in other States and foreign markets. That on account of economy in transporting said products it has come to be a universal practice to compress the same into small bales or packages, whereby a large number of bales can be loaded on a car; that it is impracticable to establish and operate plants and machinery for the purpose of compressing cotton except at a few central points in the State, and for that reason all cotton destined to markets outside of said State are shipped in the original bales or packages as prepared at the local ginneries throughout the country and concentrated at points on the lines of railroad where compresses are operated, for compression. Under the universal practice and the rulings of the Interstate Commerce Commission of the United States all cotton raised in said State and shipped to points in other States and foreign markets is subjected to a process of compression for the purpose aforesaid, the shipper being required in the first instance to pay the local rate to the point of concentration; but upon reshipment to points of destination the through, or interstate, rate is applied to the entire shipment from the point of origin (that is to say, the station from which the same was consigned to the point of concentration), to the point of ultimate destination, the difference in the local rate between the point of origin and the place of concentration being allowed the shipper and adjusted in the charge applied to the interstate shipment. Said privilege of compression in transit does not affect the interstate character of said shipments, but is an incident only in
8 the interstate movement. On September 16, 1907, said commission made and promulgated an order prescribing the following rates on uncompressed cotton in bales between all stations in said State on the following lines of railroad, viz.: Chicago, Rock

Island and Pacific Railway and branches, Kansas City Southern Railway, Louisiana and Arkansas Railroad, St. Louis and San Francisco Railroad and branches, St. Louis Southwestern Railway and branches, St. Louis, Iron Mountain and Southern Railway, leased, independent and operated lines—

For a distance of 30 miles and under, 10 cents per cwt.
For a distance of 45 miles and over 30 miles, 11 cents per cwt.
For a distance of 50 miles and over 45 miles, 12 cents per cwt.
For a distance of 75 miles and over 50 miles, 14 cents per cwt.
For a distance of 100 miles and over 75 miles, 15 cents per cwt.
For a distance of 125 miles and over 100 miles, 20 cents per cwt.
For a distance of 150 miles and over 125 miles, 30 cents per cwt.
For a distance of over 150 miles, 40 cents per cwt.

Said order further provides that—

"In so far as the jurisdiction of the commission is involved, the railroad companies operating in this State may continue in effect the present rates, rules and regulations in respect to the concentration of cotton at compress points, or the railroad companies may make such reasonable modifications of same as they may desire, provided, that before any such change or modification desired to be made by any railroad company shall become operative, the same shall be first submitted to and approved by the commission.

"All rates, rules and regulations in effect in this respect with reference to the shipment of cotton, which are not expressly disturbed or affected by the provisions of this order, shall remain in effect to the same extent as if this order had not been issued." Referring therein to the practice hereinbefore alleged in regard to the concentration and shipment of cotton from said State into other States and to markets in foreign countries.

Orator avers that the movement of cotton as aforesaid, and each and all of the parts thereof, as hereinbefore alleged, have been treated and recognized by the public and by the Interstate Commerce Commission of the United States as interstate commerce, and the direct intent and effect of the aforesaid rules, rates and orders made and promulgated by the Railroad Commission of the State of Arkansas in regard to the transportation of cotton is a direct and intentional interference with interstate commerce, both as regards the rates and the regulations in reference to the transportation thereof. Wherefore it avers that the same is unlawful and void. And orator further avers that said rates are so unreasonable, unjust and oppressive as not to afford any profit to the carriers handling the same, and are confiscatory and in violation of the aforesaid provisions of the Fourteenth Amendment to the Constitution of the United States.

## IX.

Your orator further alleges that the St. Louis and San Francisco Railroad Company for many years last past, maintained and operated, and now maintains and operates, many miles of railroad within the States, respectively of Arkansas, Missouri, Kansas, Tennessee, Mississippi, Alabama and Oklahoma, and has carried during said years, and now carries thereon, interstate commerce into, through

and out of and between all of said States. That all of said lines, owned and controlled by your orator as aforesaid, are operated as a unit; that a very large amount of interstate traffic passes over them and each of them between the States in and through which the same are operated and into and through other States with which said lines form connections at their several termini. That the local rates in the several States into and through which said lines pass enter to a very large extent, and have a controlling influence, on the through rates charged on interstate shipments which are made on a combination, or percentage of the combination, of the intermediate local rates, by adding the local rates within the several States into and through which such shipments pass. Said through rates are thus constructed, and from necessity and under the rulings of the Interstate Commerce Commission of the United States, and the
9 orders of said Railroad Commission of the State of Arkansas affect and control rates on interstate shipments passing from, into or through said State by their effect in reducing interstate rates to the sum of the combination or percentage of the combination of the local rates on such shipments. Many of the rates established by said defendants were made with reference to the local rates in adjoining States, and for the purpose of compelling the reduction of through rates on the basis of local rates in the States into and through which shipments pass.

And so your orator avers that many of the rates established by the said Railroad Commission of the State of Arkansas as aforesaid were made with the intention and for the purpose, and each and all of said rates so established as aforesaid, will have the effect of regulating and fixing interstate rates on all such classes and commodities, and such action on the part of said commission is therefore an attempt to regulate interstate rates and affect interstate commerce, and is in violation of the Constitution and laws of the United States, and an invasion by said defendants of the powers, rights and duties vested exclusively by the acts of Congress in officials of the United States.

## X.

Your orator further alleges that it is provided by an act of the Legislature of said State, approved April 8, 1903, that all persons, companies or corporations operating any railroad in said State that forms part of a continuous line of railway communication, between points in the State, shall issue through passenger tickets and check baggage through, to and from all points on such continuous line of communication at through rates and fares; that all freight and traffic carried wholly within this State to and from stations on lines of continuous carriage shall be waybilled through at through rates and tolls from points of departure to the point of arrival, without being rebilled at junction points; and in the case of car load freights the forwarding carrier shall receive and forward the same in the car or cars in which the freight is tendered, and without breaking bulk of packages; that in all cases where there is by physical connection of railroads a continuous line of railway communi-

cation between stations within this State, whether such stations be on railroads operated by one and the same company or corporation, or on railroads operated by different and independant companies or corporations, it shall be the duty of said commission to make just and reasonable rates of freight, express, and passenger traffic to and from such stations, to be observed by all persons, companies or corporations operating any railroad or engaged in transporting persons or property as express or freight in this State. That if any two or more connecting lines of railroad in this State shall fail to agree upon a fair and just division of the charges arising from the transportation of freights, passengers or cars over such lines, the commission shall make the division, and shall fix the pro rata part of such charges to be received by each of said connecting lines.

That said commission, assuming to act under and by virtue of the authority of the provisions of the aforesaid statute, by the order adopted by it on June 4, 1908, as aforesaid, attempted to make and put in force through joint rates for the transportation of shipments of merchandise by classes and commodities over two or more lines of railroad, which are not under the same management and control, by adding to the rates prescribed in the schedules prescribed by said commission for single line or continuous mileage certain differentials, and by fixing a maximum of through joint rates on classes and commodities to be charged by all railroads on shipments between stations in this State. Orator here refers to sheets 19, 20 and 21, of Exhibit "A" hereto, for a full statement in detail of the through joint rates attempted to be established by and through the aforesaid order of said commissioners.

Your orator avers that neither the State of Arkansas nor the defendants, acting as the State Railroad Commission of said State, has the power or authority to make contracts for joint through rates, or joint through routing, over different and independent lines of railroad, or to compel separate and independent lines of railroad to enter into contracts for joint rating or routing of freight over separate lines of railroad, or to accomplish the same result by prescribing arbitrary rules for the creation and division of through joint rates on separate lines of railroad; or to make and enforce joint rates between the lines of said Railroad Company and other connecting lines of railway in said State; that the effect of the aforesaid order is to create and establish traffic arrangements between separate and independent lines of railroads in relation to the transportation of merchandise between points on lines of each of said roads, and to compel said railway companies to enter into contract relations with each other without their consent, although the same may be hurtful to their interests. Orator further alleges that the joint through rates prescribed in said order are insufficient to afford any return whatever for the services rendered by the several railroads engaged in the transportation of through freights; that said oder is unjust, oppressive, confiscatory, and its effect is to deprive said Railroad Company and all other railroad companies operating in said State of their property without due process of law, and will deprive them of the equal protection of the laws, in viola-

tion of the provision of the Fourteenth Amendment of the Constitution of the United States.

## XI.

Your orator alleges that the State of Arkansas contains no large cities and very few commercial centers; that a great deal of the jobbing and wholesale trade of said State is interstate business; that the population is sparse and very small, as compared with the mileage of railroads operated in said State; that both freight and passenger business of said Railroad Company and of all other railroads operated in said State is light; that the rate of two cents per mile for the carriage of passengers and the freight rates prescribed in the aforesaid orders of the Railroad Commission of said State are unreasonably low, and neither said company, nor, it is informed, any other line of railroad operating in said State, is able to earn a reasonable compensation for the services rendered either in the carriage of passengers or freight within said State, after paying the necessary expenses of operating and other expenses necessary and incident to the intra-state business of said State. That while the rates of passenger fare as well as freight rates have been reduced by the acts of the Legislature of said State, as well as by the orders promulgated by said commission, the expense of operating and maintaining the railroads, and properties used in connection therewith, in said State has been materially increased by reason of the legislation of said State and the rules, regulations and orders of said commission. That during the session of the Legislature of 1907, at which the statute requiring the reduction of one-third in the passenger rates was enacted, many statutes imposing burdens and increasing the expense of operating and maintaining railroads were passed. Among such enactments was a law requiring railroads exceeding fifty miles in length to employ three brakemen on freight trains consisting of more than twenty-five cars, whereas previous to that time two brakemen had been employed and were sufficient for the efficient management of freight trains; requiring railroads to drain road-beds, to construct foot walks to passenger depots, to equip all locomotives with electric headlights, limiting the hours of service of employees, making railroads liable for injuries caused by fellow-servants and absolutely liable for damages caused by fire, and numerous special acts affecting and increasing the expense of operating passenger trains and maintaining depots and station houses. That many of the requirements contained in said acts were not necessary to the safe and efficient operation of trains. That a large amount of expense has been incurred and will be necessary in making and maintaining the changes provided for in said legislation, without any increase in the revenues by reason thereof. The result of all of which legislation has been greatly to increase the cost of conducting the business of said Railroad Company and other persons and corporations engaged in like business in said State. And orator alleges that all the earnings of all its lines of railroad within said State on the business transacted by it in the State are not sufficient to pay the expense of operating properly applicable

to said business and afford any adequate or reasonable return on the money invested in said property.

## XII.

Your orator alleges that the lines of road operated by said Railroad Company were constructed under grants of the State of Arkansas, which confer the right to collect reasonable rates of toll and fare for the transportation of freight and passengers over and upon said railroads, and such as would enable said Railroad Company to operate said road profitably. That there grew out of said grants and was necessarily implied therefrom an agreement or contract on the part of the State that said Railroad Company should have
11 the right to impose reasonable charges and tolls for the transportation of persons and property.

That, the General Assembly of the State of Arkansas, by an act approved July 23, 1868, passed a general law for the creation and organization of railroad corporations, for the purpose of owning, maintaining and operating railroads in said State, under which act your orator is doing business in this State as aforesaid. That said act among other things provided that—

"The Legislature may when any such railroad shall be open for use, from time to time alter or reduce rates of toll, fare, freights, or other profits upon such road; but the same shall not, without the consent of the corporation, be so reduced as to produce with said profits less than 15 per cent. per annum on the capital actually paid in, nor unless on an examination of the amounts received and expended, to be made by the Secretary of State, he shall ascertain that the net income derived by the company from all sources for the year then last passed shall have exceeded an annual income of 15 per cent. upon the capital of the corporation actually paid in."

Said provision of the statute is now in force, never having been repealed, and is contained in Kirby's Digest of the Statutes of Arkansas as Section 6590.

Said lines were constructed by said Railroad Company and those from whom it acquired and under whom it holds the same, on the faith that the State would in good faith carry out and perform its aforesaid agreement in regard to rates to be charged by railroads in said State as aforesaid, as well as with reference to the annual profits, and that it would not, by direct legislation, or through any agency created by it, impose on the persons and corporations owning and operating said railroads such rules, regulations and tariffs as would deprive them of the right to establish and charge such rates as should be reasonable, just and fair, and as would enable it to earn a profit of 15 per centum per annum on the capital actually paid in. Your orator alleges that while said Railroad Company has voluntarily reduced its rates from time to time as the development of the business upon its lines and the condition of the country would warrant, it has never consented to such reduction of its rates by the State as would reduce its profits annually below the rate provided for in the aforesaid statute.

Your orator avers that, disregarding its contract and obligation in

the premises, the State of Arkansas by and through the aforesaid act of the Legislature of said State, approved the 9th day of February, 1907, aforesaid, and the orders of the State Railroad Commission, established rates of passenger fare and freight charges which do not enable said Railroad Company to earn 15 per centum per annum on the capital actually paid in, or in fact sufficient to pay the expense of operating, maintaining and keeping down the fixed charges pertaining to the business of carrying passengers and freight in said State, or on its entire lines of railroad and business conducted therein. That the action of said State in fixing said unreasonable and confiscatory rates, and in depriving your orator by the aforesaid legislation and acts and orders of said Railroad Commission, of the power to earn a profit of not less than 15 per cent. per annum on its capital actually paid in, impairs the obligation of the contract of the State contained in said statute, as hereinbefore set out, in violation of the provisions of Section 10, of Article I, of the Constitution of the United States, prohibiting the State from passing any law impairing the obligation of its contract.

## XIII.

Your orator further represents and shows that under the provisions of the aforesaid act creating said Commission, any person or corporation operating a railroad in the State of Arkansas, who shall fail or refuse to put in force any tariff ordered by said Commission, or any of the rules and regulations prescribed by said Commission shall become liable to a penalty of not less than $500 nor more than $3000 for each violation, to be recovered in an action brought in the name of the State in the county in which such violation shall occur. It is made the duty of said Commission to institute such actions as may be necessary for the recovery of the aforesaid penalties through the prosecuting attorney of the proper district, or through counsel specially employed by said Commission. Said act further provides that in case any person or corporation engaged in operating a railroad in the State of Arkansas shall not do or permit to be done any act, matter or thing in said act required to be done, or shall violate any of the provisions of the act, person or corporation shall be held to pay to the person, firm or corporation thereby injured
12 double the amount of damages by him sustained, and all costs to be recovered by such person, firm or corporation. That in all actions between private parties and railroad companies brought under said act, the rates, charges, orders, rules, regulations, and classifications prescribed by said Commission prior to the institution of such action shall be held to be reasonable, fair and just, and shall not be controverted therein; and as accumulative penalty, in addition to the penalties and double liabilities aforesaid, any person or corporation operating a railroad in said State who shall take or receive any greater compensation for the transportation of passengers than the rate prescribed by law, shall forfeit and pay for every such offense not less than $50 nor more than $300 and the cost of suit, including a reasonable attorney's fee, to be taxed by the court; and it is further provided that any officer, agent or employe of any railroad who shall

knowingly and wilfully demand, take or receive any greater compensation for the transportation of passengers than the amount allowed by law, shall likewise forfeit not less than $50 nor more than $300 and the cost of suit, including attorney's fee, to be taxed by the court for each offense.

Orator alleges that the penalties and liability imposed by the aforesaid provisions of the statute of said State are so severe as to constrain persons and corporations subject to the provisions of said legislation to submit thereto, however illegal and oppressive the same may be, rather than to take the risk of incurring such liability and penalties, the effect of which would be utterly to bankrupt and destroy such corporations, and to expose the officers, agents and employes thereof to severe penalties and heavy liabilities. That the said St. Louis & San Francisco Railroad Company was compelled to and did, solely for the purpose of protecting itself from the many severe and onerous penalties prescribed by said statutes, put in force all the aforesaid rates for the carriage of freight and passengers in said State, and comply with all the orders, rules and regulations prescribed by said commission, and has at all times since continued to observe said rates, orders, rules and regulations for the transportation of freight and passengers over its railroad, and in the conduct of its business in said State, and will continue so to do in future, as your orator is informed and believes and so charges, unless restrained by the order and decree of this Honorable Court, to the great and irreparable damage and loss of said Railroad Company and of your orator.

Your orator further shows that if said Railroad Company shall charge or collect any higher rates than such as are prescribed by said Commission as aforesaid for the transportation of passengers or freight, or shall fail or neglect to comply with any of the orders, rules and regulations prescribed by said Commission as aforesaid, said Commission will cause penalty suits to be instituted against it, as authorized by the provisions of said statute, through the prosecuting attorneys of the various judicial districts in said State through which its lines of railroad extend; that said suits will be brought against said Company for violation of each of the rates for the transportation of passengers as well as freight, between the many stations on its lines of railroad; that hundreds and thousands of actions at law and prosecutions may and will be instituted and prosecuted against said Railroad Company by the defendants, shippers, and others of the same class, and in said suits and prosecutions said rates, rules, orders and regulations will, under the aforesaid provisions of the statute, be taken and treated by the court as just and reasonable, and any higher rate charged or collected by said Railroad Company as unjust and unreasonable, and therefore violative of the provisions of said acts and said orders, rules and regulations of said Commission; that the practice and procedure of the courts having jurisdiction of such suits and prosecutions are wholly unsuited to and inefficient for stating and taking the complicated accounts that must be examined and considered in order to show and determine the rates and fares fixed by said act to be unfair, unreasonable and unjust, and the

methods of procedure will amount to a confiscation of the property of said Railroad Company and of your orator, in violation of the Constitution and laws of the United States, and are for that reason null and void.

Your orator therefore asks for such protection as this Honorable Court may afford, not only in its own behalf, but for and on behalf of other stockholders of said St. Louis & San Francisco Railroad Company.

13 XIV.

Your orator further alleges that the penalties prescribed by the statutes of the State of Arkansas for a violation of the rules and regulations of said commission, and the rates of freight and passenger fare put in force by said commission, are unreasonable and excessive in amount. That the penalties that would accrue against your orator each day for the violation of the rates prescribed by the aforesaid orders of said commission for the carriage of freight between stations in said State, on the basis of the minimum fine prescribed by law, would amount to $——, and for the violation of the rates prescribed as aforesaid for carrying passengers within said State on the basis of the minimum fine imposed by the aforesaid statutes would amount to $143,000. That said penalties are immoderate and out of proportion to the acts designed to be punished; they are absurd and unreasonable in that they apply without discrimination to a great variety of acts and omissions that are wholly unlike and dissimilar both in regard to the nature of the act done or omitted and its effect upon the rights of the public and of individuals, and said provisions are manifestly designed to operate as a menace to compel unquestioning obedience on the part of railroad companies, their officers, agents and employees to all orders, rules and regulations promulgated by said commission without regard to their lawfulness, by exposing said companies to such ruinous fines and penalties, and the officers, agents and employees of said companies likewise to such severe and ruinous penalties as to deter the said companies, and the officers, agents and employees thereof, from resisting on any ground, however harsh or unreasonable the action of said commission may be or seem, and by deterring all said parties from resorting to the courts for the purpose of contesting the legality of such rules, regulations and rates, for fear of being harassed and oppressed by a multitude of prosecutions and suits during the pendency of such proceeding, and of the consequences to them in case they should fail to maintain the ground of contest, notwithstanding that the same may have been instituted in the utmost good faith and for the purpose of testing and judicially determining the validity and legality of such order, rule or regulation. Wherefore your orator avers that said provisions are discriminative, and deprive your orator, and all others in like condition, of their property without due process of law, and of the equal protection of the law, and are therefore in violation of Section 1 of the Fourteenth Amendment of the Constitution of the United States.

Said provisions are likewise in violation of Section 9 of Article II of the Constitution of the State of Arkansas, which provides that no person shall be subject to excessive fines, and that no unusual punishment shall be inflicted.

## XV.

Your orator is now, and for more than one year last past continuously, has been a shareholder of said defendant, St. Louis and San Francisco Railroad Company, owning seven hundred and fifty-three (753) shares of its second preferred stock, of the par value of one hundred dollars ($100.00) each. He brings this bill in his own behalf and in behalf of all other stockholders of said Railroad Company similarly situated who may join therein. Prior to the institution of this suit, your orator demanded of said St. Louis and San Francisco Railroad Company, its Board of Directors and President, that said Railroad Company decline to observe and comply with the aforesaid orders, rules and regulations put in force by said commission as aforesaid, or to continue to observe the rates prescribed by said commission, or by the aforesaid act of the legislature of said State for the transportation of freight and passengers within the State, and that said Railroad Company, and said Board of Directors and President, take, institute and prosecute all necessary and proper proceedings and actions to prevent the enforcement of, or a compliance with said orders, rules regulations or rates, by said Railroad Company. That said Railroad Company, its Directors, President and Officers, have wholly refused and declined to comply with such demand in any respect. Your orator is advised and believes, and so charges, that said Railroad Company unless restrained by the order or decree of this court, will continue in force and observe all and singular the rates and tariffs provided for and prescribed in said acts and by said commission.

14 This suit is not in any manner, or to any extent, a collusive one to confer on the courts of the United States jurisdiction of the case, of which it could not otherwise have cognizance.

Premises considered, for as much as your orator is remediless at law and can only obtain relief in a court of equity, where matters of this kind are cognizable, your orator prays:

(1) That the orders of the Railroad Commission of the State of Arkansas, fixing rates and charges for freight transported by said Railroad Company within said State, and fixing and establishing joint through freight tariffs on different and independent lines of railroad, and all rules and regulations affecting and concerning the same and each and every part thereof, and each schedule in said orders contained, be set aside and held for naught; that the order of said commission, made on June 4, 1908, to take effect June 15, 1908, fixing and establishing tariffs and charges on freights transported over said Railroad Company's line of railroad between stations situated within said State on classes and commodities, and fixing and establishing joint through rates on independent connecting lines of railroad, and all rules and regulations affecting and concerning the

same, and contained in said order of June 4, 1908, be set aside and held for naught.

(2) That said act of the Legislature of the State of Arkansas, approved the 9th day of February, 1907, and the orders of the railroad commission of said State establishing and fixing a rate of two cents per mile for the transportation of passengers between stations in said State on said company's railroad and over lines leased and operated by it in said State, be set aside and held for naught.

(3) That the said R. H. Allen, John W. Crockett and J. E. Hampton, as railroad commissioners of the State of Arkansas be restrained and enjoined from putting in force, or taking any step or action whatsoever looking to the putting or continuing in force and effect, the aforesaid tariff of charges for the transportation of freight and passengers on your orator's railroad within the State of Arkansas, adopted by it on June 4, 1908, as aforesaid, and that said tariffs, and all rules, regulations and orders made and promulgated by said defendants for the purpose of putting the same into effect, be set aside and held for naught.

(4) That the provisions of the aforesaid statutes of the State of Arkansas prescribing penalties against said Railroad Company, its officers, agents and employees for the failure or refusal to put into force any tariff ordered by the Railroad Commission of said State, or any of the rules and regulations prescribed by said commission or for charging, taking or receiving any greater compensation for the transportation of passengers than the rate prescribed by law, and declaring railroad companies liable to private parties in actions for double damages for the failure to comply with any of the aforesaid orders or provisions be declared void and of no force or effect whatsoever, and that said commissioners and each and every one of them, their successors in office, agents, servants, and employees, be temporarily and permanently restrained from enforcing, or attempting to enforce, the rates, charges, rules, and regulations fixed by the orders of said commission aforesaid respecting the carriage of freight and passengers within the State of Arkansas, or from enforcing or attempting to enforce through any agency provided in the statutes of the State of Arkansas or otherwise, any of the penalties prescribed by the statutes of said State for failure on the part of said St. Louis and San Francisco Railroad Company to observe any of the aforesaid orders made by said commission; and that said commissioners be temporarily and perpetually enjoined and restrained from prosecuting any suit or action, or causing the same to be prosecuted, by any officer or agent of said commission or by any officer of the State of Arkansas, or any other person, for the failure to put or keep in effect and to observe the rates of freight and passenger fare and the rules and regulations of said commission so fixed and established as aforesaid, or from taking any action with the intent and for the purpose of enforcing the provisions of the order made by said commission on June 4, 1908, fixing rates for the carriage of passengers and freight as aforesaid, or from doing or attempting to do, any act or thing, or requiring said Railroad Company to do any act or thing, by way of compliance with, or for the purpose of carrying out, said order, rules and regulations or any part thereof.

(5) That said shippers and all other persons belonging to the same class, including all patrons of said Railroad Company either in the shipment of freights between stations on the company's lines of railroad in said State, or as passengers on said lines between stations in said State, be enjoined and restrained during the pendency of this proceeding, from instituting any suit or suits, action or actions, against the company for the recovery of any penalties under and by virtue of the provisions of any of the aforesaid acts of the Legislature of the State of Arkansas, or for the recovery of double damages under and by virtue of the provisions of any of the aforesaid acts of the Legislature of said State, and upon the final hearing herein that said defendants and all other persons belonging to the classes aforesaid, and who are engaged or may be engaged in intrastate shipments of freight on or over your orator's lines of railroad, or may become intrastate passengers thereon, be perpetually enjoined and restrained from instituting any such suits or actions against said Railroad Company.

(6) That the St. Louis and San Francisco Railroad Company, its officers, agents and servants, be restrained and enjoined from continuing in force the rates for the transportation of passengers over and upon its lines of railroad within the State of Arkansas prescribed by the provisions of the aforesaid statute and the aforesaid order of said commission putting said statutory rate in force, or the rates prescribed in the aforesaid Standard Freight Distance Tariffs Nos. 2 and 3 for the transportation of freight on its lines of railroad in the State of Arkansas, both as to classes and commodities, or from continuing to comply with the rules, regulations and orders adopted and promulgated by said commission in respect of the through routing and through rating of freights transported over said defendant's lines of railroad and other connecting lines within said State during the pendency of this proceeding; and upon final hearing, that said defendant be perpetually restrained and enjoined from complying with any of the aforesaid rates, rules, regulations or orders prescribed by said commission as aforesaid.

And your orator prays for such other and further relief as may seem meet, and as it may be entitled to.

And may it please your honor to grant unto your orator a writ of subpœna of the United States of America issuing out of and under the seal of this honorable court directed to St. Louis and San Francisco Railroad Company, the said R. P. Allen, John Crockett, and J. E. Hampton, constituting the Railroad Commission of the State of Arkansas, and the said W. W. Dickinson and T. H. Bunch, thereby commanding them and each of them on a day certain therein to be named, under certain penalty, to be and appear before this honorable court, and then and there full, true and direct and perfect answer to make to all and singular the premises, but not under oath—answer under oath being expressly waived—and to perform and abide by such order, direction and decree as may be made in the premises. And your orator will ever pray.

MOORE, SMITH & MOORE,
*Solicitors for Complainant.*

STATE OF MISSOURI,
*City of St. Louis, ss:*

I, Wilbur F. Boyle, upon oath say, that I am a stockholder of the St. Louis and San Francisco Railroad Company, and complainant in the above and foregoing Bill of Complaint; that I have read said bill and know the contents thereof, and the same are true of my own knowledge, except as to those matters therein stated upon information and belief, and as to those matters, I believe them to be true.

(Signed) WILBUR F. BOYLE.

Subscribed and sworn to before me this 17th day of July, 1908. My term expires May 21st, 1909.

(Signed) ROBERT E. MOLONEY,
[SEAL.] *Notary Public, City of St. Louis, Mo.*

Endorsed: Filed and writs issued July 18th, 1908. W. P. Feild, Clerk.

16 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the Sixth day of April, Anno Domini, One Thousand, Nine Hundred and Eight, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on July 25th. 1908.

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY; R. P. ALLEN, John W. Crockett, and John E. Hampton, Railroad Commissioners of the State of Arkansas; W. W. Dickinson, and T. H. Bunch.

Come the defendants, Robert P. Allen, John W. Crockett and John E. Hampton, as Railroad Commissioners of the State of Arkansas, by Morris M. Cohn, Esq., their solicitor, and file herein their answer.

Which Answer of the Defendants, Robert P. Allen, John W. Crockett and John E. Hampton, is as follows:

17 In the United States Circuit Court for the Western Division of the Eastern District of Arkansas.

In Chancery.

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY and R. P. ALLEN, John W. Crockett, and J. E. Hampton, Railroad Commissioners of the State of Arkansas, et al.

To the Judges of the Circuit Court of the United States for said District:

The defendants, R. P. Allen, John W. Crockett and J. E. Hampton, as members of and constituting the Railroad Commission of Arkansas, saving and reserving to themselves all manner of objection and exception which they may be entitled to save to the many imperfections and insufficiencies in the bill of complaint, for answer thereto say:

(1) That it is true that they are members of and constitute the Railroad Commission of the State of Arkansas as alleged in the 1st paragraph of the complaint, and that it is true that John W. Crockett and J. E. Hampton reside in said District and that R. P. Allen resides at Van Buren, in Crawford county, in the Western Judicial District of said State, and that the legislature of the State of Arkansas has fixed and established the domicile of said Railroad Commission at the city of Little Rock in the county of Pulaski in said State. They admit that W. W. Dickinson and T. H. Bunch,

18 their co-defendants, are residents and citizens of Pulaski county, Arkansas, and that they both reside in the Western Division of the Eastern District of said State. They do not know whether the said defendants are engaged in shipping over co-defendant railroad company's road and other roads in said State to and from points therein or not. They do not know whether said defendants are in the habit of traveling on the passenger trains of their co-defendant, St. Louis & San Francisco, within the said State or not. They do not know whether said defendants represent a class of shippers and passengers so numerous that it is impracticable to attempt to join them all, but they admit that there are a great many shippers and passengers in the said State besides the said W. W. Dickinson and T. H. Bunch.

(2) It admits the allegations of the said paragraph relating to the incorporation of said St. Louis & San Francisco Railroad Co., and admits that it is engaged, amongst other things, in interstate commerce; and they admit that it owns a number of different railroads or branches of railroads which are managed at one general office, but they aver that the said co-defendant railroad company purchased since the year 1880 different lines of railroad in the said

State of Arkansas which it incorporated with its own, said purchase being mentioned in paragraphs B, C, D, E, F, G, H, I, J, K, L, and M of said paragraph marked 1st in said complaint.

(3) Said defendants are advised that it is not necessary for them to make specific answer to paragraph 2nd of the complaint.

(4) For answer to paragraph 3d of the complaint, de-
19 fendants say that it is true that the said Railroad Commission was created by the Act of March 11, 1899, as set forth in said paragraph, but that said paragraph has omitted to state that suits for damages and costs sustained by any person, firm or corporation under the provisions of the act referred to had to be instituted within a year from the accural of the right, or same became barred.

But the defendants deny that the effect of the provisions of said act of March 11, 1899, was to deny to the complainant co-defendant railroad company and to all persons and corporations operating railroads in said State the right to a judicial investigation of the validity and reasonableness of the rates, rules, regulations and classifications prescribed by said Commission, or that it deprived complainant, said co-defendant railroad company and all others in like condition of due process of law, contrary to the provisions of Section 1 of the Fourteenth Amendment to the Constitution of the United States. For they say that by the terms of Sections 6813 and 6814 of Kirby's Digest of the statutes of the State of Arkansas, as construed by the Supreme Court of Arkansas, the rates, rules, regulations and classifications referred to have only prima facie effect, and they aver that this did not amount to a deprivation of due process of law within the meaning of Section 1 of the Fourteenth Amendment to the Constitution of the United States.

(5) Defendants admit the allegations of the 4th paragraph of the complaint, but they deny that the order of May 15, 1907, made by the said defendants, as said Railroad Commission, was necessary or authorized by the provisions of any statute or has any legal force or effect or could do the complainant and said co-
20 defendant railroad company any manner of injury, and they say the only object of said Railroad Commission in making said order was to simply endorse the act of the legislature of February 6, 1907.

(6) For answer to the 5th paragraph of the complaint, defendants deny that the St. Louis & San Francisco R. R. Co., in obedience to any rules, regulations or orders of said Railroad Commission or the aforesaid act of the legislature, solely for the purpose of protecting itself against many and onerous penalties, as charged and collected the rates for transportation of freight and passengers prescribed in schedules adopted by said Railroad Commission of said State, to its great or irreparable damage or loss, or to the loss of complainant.

(7) For answer to the 6th paragraph of the complaint, they deny that the schedules adopted and promulgated by said Railroad Commission as Standard Freight Distance Tariff No. 3, or by the provisions of the aforesaid statute for the carriage of passengers are

unjust or unreasonably low or confiscatory in their nature, or that they will not produce any return on the investment in the property of said railroad company in the said State of Arkansas. They deny that after taking the gross receipts from all the State business of whatsoever kind that the said railroad company does, can or will do in Arkansas, and deducting therefrom the cost of doing such business in said State, there will not be sufficient to pay operating expenses and taxes, and will leave no profit or returns upon the value of the property of said railroad company devoted to
21 the use of such business in the State of Arkansas. They deny that the rates and fares fixed by said Commission and by the aforesaid statute, for the classes of freight embraced in said schedules and for the carriage of passengers, are not and have not been sufficient to pay the cost of carrying and transporting the same, or that said railroad company is exercising or has exercised as great a degree of economy in the use and operation of its property as is compatible with the interests of the public and the safe and efficient service to the public, or that it has only employed such officers, agents and employes and expended such amounts in maintenance and repair of its property as was necessary and essential to the due and proper operation of its trains, and to the maintenance of said property with due regard to the preservation and the safety of the public.

And they deny that each and all of the charges and rates prescribed in said Tariff No. 3 aforesaid, as well as the preceding Tariff No. 2, are unreasonably low, or were unjust in that they did not adequately compensate said railroad company for the service to be rendered in transporting freight between stations on the railroad of said company in the State of Arkansas. And they deny that the returns and earnings of said railroad company for the transportation of freight in said State are not and will not be sufficient to pay the operating expenses of said railroad company's lines of railroad in said State, and for the necessary repairs and maintenance thereof, and taxes thereon, and will not leave a sufficient surplus to pay a reasonable return or any return upon the value of the prop-
22 erty of said railroad company used in said transportation in said State. They deny that the said railroad company or complainant will be deprived of their property without due process of law, or that either of them will be denied the equal protection of the law. They deny that the rates for the transportation of freight and passengers prescribed by the said act of the Legislature of said State and by the order of said Railroad Commission will be insufficient to compensate said railroad company for services rendered in the transportation of passengers in said State.

They admit that prior to the passage of the said act of February 9, 1907, the rate on all railroads in said State operating lines over seventy-five miles in length was three cents per mile for the transportation of adults and half fare for children under twelve and over five years of age. But they deny that the change made by the said act or order has not left sufficient from the passenger business of the said railroad company to pay the cost of doing said business, including necessary repairs and maintenance to the prop-

erty used therein, and taxes thereon, and has not left any return upon the value of the property of said railroad company used in said transportation in said State, or that thereby said railroad company and complainant will each be deprived of their property without due process of law, or will be denied the equal protection of the law, in violation of any provision of the Constitution of the United States.

(8) For answer to the 7th paragraph of the complaint, defendants say that they do not know how large a proportion of the entire tonnage transported over said co-defendant railroad company's lines of railway originating in Arkansas consists of timber
23 and timber products, but they deny that at least ninety per cent of said tonnage was shipped from points in said State to points in other States, or was interstate commerce. They are advised that it is not material for them to reply to that part of the said complaint which states that the custom prevailing between shippers and the railroad companies in said State of concentrating rough lumber at milling points. But they deny that on April 1, 1907, or at any other time, they recognized the said practice and for the purpose of regulating the same made an order that the rates therein mentioned in said complaint should apply on the shipment of rough lumber, staves, flitches, bolts and logs in carloads between all points in Arkansas set forth in said complaint. They admit that said rates were made upon the condition expressed in the order that the manufactured products should be reshipped over the same line bringing in the rough material, but they deny that such shipments contemplated an interstate shipment or a shipment beyond the limits of the State, or that it was an attempt in any manner to control shipments beyond the State. They deny that at any time any rate established by them was published or had the effect of operating as a rate applicable to interstate commerce. And they deny that any order made by them in relation to the rate of transportation for lumber in the rough or otherwise was made with the intent and purpose of establishing, regulating or fixing interstate rates on such material or commodities by any device, though they admit that the rates established from the point or origin of rough material to the point of concentration for milling purposes was based upon the custom of railroad companies to recognize the somewhat
24 cheaper rates from the point of origin to the place of concentration, in consideration of their obtaining the whole haul. But the defendants deny that there is any universal practice prevailing among shippers and railroad companies in said State, where the timber is situated at a distance from the mills, to have it transported by rail and concentrated at milling points for the purpose of being converted into lumber and other products, and take the prevailing rate under interstate shipments from the point at which the shipment of rough material originated in said State to the destination of the milled product in other states. They deny that there is any milling in transit privilege recognized or countenanced by them, which is an incident of interstate movement, or affects the interstate character of shipments of lumber. They deny that the aforesaid rates are unreasonable or oppressive, or that they

do not afford the carrier any compensation whatever for the service rendered in connection with the transportation of said commodities, or are confiscatory, or take the property of complainant and said railroad company or other carriers in said State without compensation, or are in violation of Section 1 of the Fourteenth Amendment to the Constitution of the United States prohibiting the taking of property without due process of law and without compensation, or denying to any person the equal protection of the law.

(9) For answer to the 8th paragraph of the complaint, defendants say that the rates set out there are correctly stated, but that the rates are flat or local rates, and have no reference to any interstate shipments whatever; that the said defendants, as such Railroad Commission, have not at any time adopted any custom of concentrating cotton at compression points for the purpose of
25 having the same compressed and transported outside of the State of Arkansas; that they have not made any regulation in reference to any such custom, but have confined themselves to making flat rates for delivery of cotton at points in the said State of Arkansas. They are advised that it is not necessary for them to answer that part of said complaint that describes the manner in which cotton is concentrated at compression points. And they deny that the order, copied by the complainant in said part of his complaint, in any way attempts to regulate interstate commerce; that no attempt was made by the said Railroad Commission, by anything recited in the said order, nor has it ever taken any action which could be const-ued as intending to affect the transportation of cotton from a point in the State of Arkansas to a point without said State which, during the transportation, was unloaded at a compress and put into compressed form instead of an uncompressed form. And they deny that the flat rates so made in any manner conflict with the jurisdiction of the Interstate Commerce Commission of the United States, or with the movement of cotton, or any part thereof, which has been treated and recognized by the Interstate Commerce Commission as interstate commerce. They deny that there was any direct or intentional interference with interstate commerce, either as regards the rates or regulations in reference to the transportation of said cotton. They deny, therefore, that the said rates were unlawful and void, and they also deny that they were unreasonable, unjust, or oppressive, or did not afford any profit to the carriers handling the same, or are confiscatory, or are in violation of the aforesaid provisions of the Fourteenth Amendment to the
26 Constitution of the United States.

(10) Answering the 9th paragraph of the complaint, defendants say that it is true that the St. Louis & San Francisco Railroad Co. for many years last past maintained and operated, and now maintains and operates many miles of railroad within the states, respectively, of Arkansas, Missouri, Kansas, Tennessee, Mississippi, Alabama, Oklahoma, and has carried during said years and now carries thereon interstate commerce into, through and out of and between all of said states. They deny that all of said lines are owned and controlled and operated as a unit.

They admit that a very large amount of interstate traffic passes over the said roads and each of them. They deny that the local rates in the several states in which and through which said lines pass enter to a very large extent and have a controlling influence on the through rates charged on interstate commerce. They aver that all local rates established by the said Railroad Commission are within the province of the said Commission, and have reference solely to intrastate commerce; that the said Railroad Commission of the said State of Arkansas has had nothing to do with through rates applying to interstate commerce on the lines of the said co-defendant railroad company or any other railroad company. They deny that the matters alleged in said part of said complaint, as far as they seek to show that the local rates made by these defendants enter into through rates made by the co-defendant railroad company in interstate traffic, are material. They deny that, by reason of any of the matters set forth in said part of said complaint, the rates established by said Railroad Company were made with the in-
27 tention and for the purpose, or that each and all of said rates so established will have the effect of regulating and fixing interstate rates on all such classes and commodities, or that the same amount to an attempt to regulate interstate rates or affect interstate commerce, or are in violation of the Constitution of the United States, or are an invasion by the defendants of the powers, rights or duties vested exclusively by the Acts of Congress in officials of the United States.

(11) For answer to the 10th paragraph of the complaint, defendants say that by the Act of April 8, 1903, passed by the General Assembly of the State of Arkansas, the said Railroad Commission was invested with the power to establish joint rates and to provide for continuous carriage; that they do not know whether the terms of the said act are correctly copied in the said part of said complaint or not. They admit that they have assumed to act under the terms of the said act, and that they have put in force joint rates, and that the rates are correctly stated in said part of said complaint. They aver that prior to the enactment of the said act of the legislature, the said Commission did not have the power to deal with continuous transportation and joint rates, and that the said act was passed for the purpose of enabling the said Commission to deal with the matter, which was necessary to the protection of the shippers of the State of Arkansas; that prior to the enactment of the said act, there were great evils growing out of the practice of the railroad companies in said States, including that of the co-defendant railroad company, whereby a haul that was really continuous was split up into fragments over the different lines which were formally described as independent lines, though all under one manage-
28 ment, and different local rates over each of the said lines *was* applied, to the great damage of numerous shippers in the said State; that it was deemed to be just and proper by the legislature of the State of Arkansas to correct this practice by passing and to provide a method of joint rates and joint routes that should be just to railroads of said State as well as to the shippers. So, the

said act was passed by the legislature of said State at the time stated. That the rates so established by defendants were established after careful inquiry and proper hearing of the railroad companies and other parties concerned; that the said co-defendant railroad company or complainant has never filed any petition before the said Railroad Commission complaining of the said joint rates so established, or any other orders relating to joint traffic established by the said Railroad Commission. They say, as they are advised, that the said law was within the proper province of the legislature of the said State of Arkansas, and they deny that the said joint rates are insufficient to afford any return whatever for the service rendered by the several railroad companies engaged in the transportation of through freight, or that said order is unjust, oppressive or confiscatory, or that its effect would be to deprive complainant or said co-defendant railroad company or any other railroad company operating in said State of their property without due process of law, or will deprive them of the equal protection of the law, or is in violation of any provisions of the Fourteenth Amendment to the Constitution of the United States.

(12) For answer to the 11th paragraph of the complaint, said defendants say that they are unable to understand what is meant by the allegation that the State of Arkansas contains no large
29 cities and very few commercial centers. They admit that a great deal of the jobbing and wholesale trade of said State is interstate business, and they say that the interstate feature of the business is for the most part confined to shipments from the eastern seaboard, from the North and from the South, to the wholesale jobbers of the State. They deny that the population is sparse and very small as compared with the mileage of railroads operating in said State, or that either the freight or passenger business of co-defendant railroad company and of all other railroads operating in said State is light, or that the rate of two cents per mile for the carriage of passengers and the freight rates prescribed in any orders of the Railroad Commission of said State are unreasonably low. They deny that neither the co-defendant railroad company -or any other line of railroad operated in said State is able to earn a reasonable compensation for the service rendered in the carriage of passengers or freight within the said State, after paying the necessary expenses of operating and other expenses necessary and incident to the intrastate business in said State.

They deny that the expense of operating and maintaining the railroads and properties of the complainant and said co-defendant railroad company in said State has been materially increased by reason of the legislation of said State or the rules, regulations or orders of said Railroad Commission. They deny that during the session of the legislature, at which the statute requiring the reduction of one-third in the passenger rates was enacted, many statutes imposing burdens and increasing the expense of operating and maintaining the railroads were passed, and they say whatever laws were passed were rendered necessary by evils and necessities
30 which grew up with the increasing population in the said State, and the indifference of the co-defendant railroad com-

pany and other railroad companies for the lives of brakemen. They deny that many of the requirements contained in the said acts were not necessary to the safe and effecient operation of trains; or that a large amount of expense has been incurred or will be necessary in making and maintaining the changes provided for in such legislation without any increase in the revenue by reason thereof. They deny that the said legislation, as construed by the supreme court of the said State, will greatly increase the cost of conducting the business of the co-defendant railroad company or other persons or corporations engaged in like business in said State. They deny that all the earnings of all of its lines of railroad within said State on the business transacted by it in the State are not sufficient to pay the expense of operating principally applicable to said business, or that they do not afford any adequate or reasonable returns on the money invested in said property.

(13) For answer to the 12th paragraph of the complaint, defendants admit that the lines of railroad operated by the co-defendant railroad company were constructed under grants of the State of Arkansas, but deny that said railroad company had any other right to collect tolls than was implied in the organization of said railroad company. They admit that said railroad company was entitled to a return upon the fair value of its investment over and above the expense of operating and maintaining it, but they deny that the said railroad company can include in the yearly expense of operation and maintenance expenditures made for permanent improvements or those matters that are in the nature of permanent
31 improvements. They deny that there grew out of said grants, and was necessarily implied therefrom, any other agreement or contract than has just been stated. They admit that the General Assembly of the State of Arkansas on July 23, 1868, passed a general law for the creation and organization of railroad corporations, and that the section which is still written in Kirby's Digest of the statutes of Arkansas, and known as Section 6590, was contained therein. But they allege that at the time the said act was passed, there was a provision in the then-existing constitution of the State of Arkansas, Art. V, Sec. 48, Constitution of 1868 of said State which provided:

"That the General Assembly shall pass no special act conferring corporate powers. Corporations may be formed under general laws; but all such laws may, from time to time, be altered or repealed"

said section applying to railroad corporations. But subsequently, to wit: on the 30th of October, 1874, a new constitution was adopted, by Art. XII, Sec. 6, of which it was provided:

"That corporations may be formed under general laws, which laws may, from time to time, be altered or repealed. The General Assembly shall have the power to alter, revoke or annul any charter of incorporation now existing and revokable at the adoption of this constitution, or any that may hereafter be created, whenever, in their opinion, it may be injurious to the citizens of this state, in such manner, however, that no injustice shall be done to the incorporators."

That whatever rights accrued to any railroad company organized under either of said acts were taken subject to the right of the General Assembly of the State of Arkansas to alter or repeal the same; and that subsequently, by the provisions of the Act of March 11, 1899, and acts supplementary thereto, of the General Assembly of the State of Arkansas, the Railroad Commission was in-
32 vested with power to fix the reasonable rates for all railroad companies, and that it adopted the rates which have been heretofore mentioned, pursuant to the authority vested in said Commission by the acts of the General Assembly aforesaid. And these defendants deny that the said Section 6590 of Kirby's Digest is in force and effect. They deny that the co-defendant railroad company's lines of railroad, or any of those which it acquired and under whom it holds, were constructed on the faith that the States would in good faith carry out and perform any agreement in regard to rates to be charged by railroads in said State, either with reference to annual profits or otherwise. They deny that upon the pretended faith of said provision of Kirby's Dig., of any other provision of the laws of the State of Arkansas, the General Assembly agreed with the co-defendant railroad company or the complainant or otherwise that it would not, by direct legislation or through any agency created by it, impose on the persons and corporations owning and operating said railroads rules, regulations or tariffs as would deprive them of a profit of fifteen per cent. per annum on the capital actually paid in. They aver, however, as they are informed and believe, that the said co-defendant railroad company is earning a profit of fifteen per cent. per annum, if not more, on the capital actually paid in. They deny that co-defendant railroad company has voluntarily reduced its rates from time to time as the development of the business of the lines and the condition of the country would warrant and demand; they say that when the rates were made which it now complains of, it made no complaint thereof to the Railroad Commission of
33 Arkansas in order to have the matter inquired of and corrected, if any complaint it had, which they deny. They deny that the co-defendant railroad company is not able to earn fifteen per cent. per annum on the capital stock actually paid in by reason of the Act of February 9, 1907, or any orders of the Railroad Commission of said State. And they deny that the income is not sufficient to pay the expense of operating and maintaining and keeping down the fixed charges pertaining to the business of carrying passengers and freight in said State. They deny that the action of said State in fixing said rates was unreasonable or confiscatory, or that it deprived the co-defendant railroad company by any legislation or acts, or orders of said Railroad Commission, of the power to earn a profit of not less than fifteen per cent. per annum on capital paid in. They deny that there was any impairment of any obligation of any contract which the State entered into with said co-defendant railroad company in conflict with any provision of the Constitution of the United States.

(14) For answer to the 13th paragraph of the complaint, said defendants say that no penalty imposed by any provision of any

legislation of the legislature of the State of Arkansas applies except where the act of wrongdoing is done by the co-defendant railroad company. And they aver that the occasions on which the provisions of said Statutes of the State of Arkansas were disregarded by said railroad company, and the occasions when its action was oppressive and harmful to shippers and other persons in the said State of Arkansas, were so numerous and repeated and became so intolerable and unbearable that the General Assembly found it
34 necessary to attach penalties of greater or lesser size to enactments and requirements of the laws of said State in order to obtain an observance thereof by the said co-defendant railroad company and other railroad companies in said State of Arkansas; and that if the said railroad company and other railroad companies had shown a disposition to act fairly with the shippers and other persons in the said State of Arkansas, such enactments would not have been passed; that there is no way that they know, nor of which they have been advised, by which a railroad company can be induced to carry out its obligations except by the infliction of penalties, and that if sometimes there penalties are severe, it is because, in the wisdom of the legislature of the State, a small penalty would be disregarded. They deny that the penalties and liabilities imposed by any provision of any statute are so severe as to constrain persons and corporations subject to the provisions of said legislation to submit thereto, however, illegal, rather than take the risk of incurring such pretended enormous liabilities and penalties. They deny that the effect of these would be so utterly bankrupt and destroy said complainant of said co-defendant railroad company or any other railroad company, or cause the persons whose money is invested in such property to forfeit their entire investment. They say that the co-defendant railroad company has not hesitated to disregard the law whenever it saw fit to do so and contest its rights before the courts of Arkansas, and whenever it was in the right the courts of Arkansas have protected it, as disclosed by decisions under the statutes enacted by the last General Assembly of the State of Arkansas. They deny
35 that no private officer, agent or employee of any such railroad could afford to take the risk of the penalties and forfeitures imposed upon him personally by said statutes. They deny that the co-defendant railroad company and all other persons and corporations operating railroads in said State subject to the provisions of the aforesaid statutes have been coerced into compliance with any illegal or confiscatory legislation by said State or orders made or promulgated by said Railroad Commission, rather than to subject said property, or the officers, agents or employes employed in and about the operation of the same, to a multitude of suits or prosecutions that would have followed the failure or refusal to put such rates in force. And they deny that the said rates, both as to freight and passengers, cannot be continued in effect without irreparable loss to the complainant or said co-defendant railroad company, or serious or irreparable injury to and destruction of the property, rights and interests of the complainant or said railroad company, and of all persons interested in said properties as creditors or stockholders.

(15) For answer to the 14th paragraph of the complaint, said defendants say that it is not true that the penalties prescribed by the statutes of the State of Arkansas for the violation of the rules and regulations of said Commission, and the rates of freight and passenger fares put in force by said Commission, are unreasonable and excessive in amount. They aver that they have been advised that it is not a ground of complaint against the laws of the State of Arkansas that a party has been a frequent and persistent offender, and because of this fact the penalties he may have incurred may
36 aggregate a considerable sum. And they have been advised and aver that if accumulated penalties are incurred on any account by an offender of the said laws, it is due to a constitutional disposition to disregard the law and commit offenses prohibited by the laws of the State under which he exists and does business. They deny that the said penalties were immoderate or out of proportion *of* the acts designed to be punished. They deny that they are absurd or unreasonable in that they apply without discrimination to a great variety of acts that are wholly unlike and dissimilar, both in regard to the nature of the acts done or omitted, and in the effect thereof upon the rights of the public and individuals. They deny that any provisions of the statutes are designed to operate as a menace to compel unquestioning obedience on the part of the railroad companies, their officers, agents and employes, to all orders, rules and regulations promulgated by said Commission without regard to their lawfulness, by exposing said companies to such ruinous fines and penalties, and the officers, agents and employes of said companies likewise to such severe and ruinous penalties, as to deter said companies and the officers, agents and employes thereof, from resisting on any ground, however harsh or unreasonable the action of said Commission may be or seem, or for the purpose of testing the legality of any such rules, regulations and rates for fear of being harassed and oppressed by a multitude of prosecutions and suits during the pend*en*dy of such proceeding, or because of the consequences to them in case they should fail to maintain the ground of contest. And they deny that any of said provisions were discriminative or deprived complainant *of* said co-defendant railroad company and all
37 others in like condition of their property without due process of law, and of the equal protection of the law, or imposed unreasonable fines or unusual punishment, within the meaning of the Constitution of the United States or of the State of Arkansas.

(16) And for answer to paragraph 15th of the complaint, defendants say that they have no knowledge as to whether the complainant is a shareholder of the St. Louis & San Francisco Railroad Company or not, or whether he owns 753 shares of the second preferred stock of the par value of One Hundred Dollars of the stock of said company or not, but they deny that he has the right to bring a bill in his own behalf and in behalf of all the other stockholders of said railroad company similarly situated who may join him herein. They deny that prior to the institution of this suit complainant demanded of the said St. Louis & San Francisco Railroad Co., or its Board of Directors, or President, that said railroad company decline

to observe and comply with the aforesaid rules, orders and regulations put in force by said Commission as aforesaid, or that he demanded that they discontinue the observance of the rates prescribed by said Commission or by the aforesaid acts of the legislature of said State for the transportation of freight and passengers within the said State, or that he demanded that said railroad company, or its Board of Directors, or its President, should institute or prosecute any proceeding or actions to prevent the enforcement of or compliance with said orders, rules, regulations or rates prescribed by said Railroad Commission. They deny that said railroad company, its Board of Directors or officers refused in any manner or declined to comply with such demands in any respect.

38 And, having answered, these defendants ask that the complaint be dismissed as to them and that they be permitted to go hence with their costs.

W. F. KIRBY,
*Attorney General:*
ROSE, HEMINGWAY, CANTRELL & LOUGHBOROUGH,
MORRIS M. COHN,
*Solicitors for said Def'ts.*

STATE OF ARKANSAS,
*County of Pulaski, ss:*

J. E. Hampton, one of the defendants herein, being duly sworn, says that the matters and things set forth in the foregoing answer as being based on personal knowledge are true, and that the matters and things set out as being based upon information he believes to be true.

J. E. HAMPTON.

Subscribed and sworn to before me this 25 day of July, 1908.
NOEL LOEB,
*Notary Public.*

Endorsed: Filed July 25th, 1908. W. P. Feild, Clerk.

39 And on July 31st. 1908, the following proceedings were had, to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Now on this day comes the complainant, by his solicitors, and come the defendants by their solicitor, and thereupon the hearing of complainant's application for temporary injunction is continued, and said application is set for further hearing on August 31st. 1908,

before the undersigned Circuit Judge, at Chambers, at St. Paul, Minn.; and it is thereupon ordered that the complainant serve the solicitors of the defendants with copies of affidavits and exhibits to be used by the complainant at said hearing on or before August 8th. 1908; that the defendants serve the complainant's solicitors with affidavits and exhibits to be used by them at said hearing on or before August 24th, 1908, and that complainant serve defendant's solicitors with any rebutting affidavits and exhibits that they intend to use at said hearing on or before August 29th. 1908.

Done at St. Paul, Minn., July 28th, 1908.

(Signed) WILLIS VAN DEVANTER,
*Circuit Judge.*

40 And on September 3rd. 1908, the following proceedings were had to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY; ROBERT P. Allen, John W. Crockett, and John E. Hampton, Railroad Commissioners of the State of Arkansas, and W. W. Dickinson, and T. H. Bunch.

This cause came on to be heard on motion of the complainant for a temporary restraining order, and, after submission of the proofs, was argued by counsel and now, upon consideration thereof, it is ordered as follows:

That as to the defendant, the St. Louis and San Francisco Railroad Company, all rates prescribed by the defendants, the Railroad Commissioners of the State of Arkansas, for transporting and carrying intrastate freights in said State, in Standard Freight Distance Tariff No. 3, which was issued by the order of said Commissioners which took effect on June 15th. 1908, and all amendments and supplements thereto be and are hereby suspended and the enforcement of each and all thereof be and the same is hereby restrained and enjoined until the further order of the Court.

It is further ordered that the enforcement of the two cents per mile rate prescribed in an Act of the Legislature of the State of Arkansas, approved February 9th, 1907, entitled "An Act to amend Section 6611 of Kirby's Digest of the Statutes of Arkansas by fixing passenger rates in this State and for other purposes," and also
41 prescribed in the order made by the defendants, the Railroad Commissioners of the State of Arkansas on May 15, 1907, putting in force the rates prescribed by the aforesaid statute, be and the same is hereby suspended and restrained as to the defendant, the St. Louis and San Francisco Railroad Company, until further order of the Court.

It is further ordered that the defendant, the St. Louis and San

Francisco Railroad Company, its officers, agents, and servants be and they are hereby restrained and enjoined from continuing in force the aforesaid inhibited rates for the carriage of freight and passengers in the State of Arkansas as aforesaid except at such points and upon such commodities as said defendant and its officers shall find it necessary to observe said schedule of rates in order to meet competition.

It is further ordered that no suit or suits, action or actions shall at any time be instituted or maintained against the defendant, the St. Louis and San Francisco Railroad Company, its officers, agents, or employees by any of the other defendants for or on account of said railway company's failure to continue and keep in force any of the aforesaid inhibited rates during the time that this order shall continue in force and that the defendants, the Railroad Commissioners of the State of Arkansas, be and they are hereby enjoined from at any time instituting or prosecuting any suit or action as aforesaid or causing the same to be instituted or prosecuted by any officer, agent or attorney of said Commission or by any officer of the State of Arkansas or any other person for a failure to keep in effect and
42 observe the aforesaid inhibited rates. That the defendants, W. W. Dickinson and T. H. Bunch, and all other persons and each of them, from and after the time that they shall have knowledge of this order, be enjoined from at any time instituting any such suit or action for or on account of any failure of the said defendant Railway Company to keep in effect and observe said inhibited rates or for the recovery of damages by reason of such failure during the time that this order shall continue in effect.

It is further ordered that the complainant execute a bond to the United States of America in the penal sum of Two Hundred Thousand Dollars conditioned that the railway defendant shall keep a correct account showing, as respects every carriage of passengers or freight, the difference between the tariff actually charged and that which would have been charged had the rates inhibited been applied, showing the particular carriage in question and the stations between which the same occurred and the name of the person affected, so far as may be practicable, which record shall be made and kept subject to the further order of this Court, and further conditioned that if it should eventually be decided that so much of this order as inhibits the enforcement of existing rates should not have been made, that the said railway defendant, within a reasonable time to be fixed by the Court, refund in every instance to the party entitled thereto, the excess of charge over what would have been charged had the inhibited rate been applied, together with lawful interest and damages.

It is further ordered that ths order suspending the afore-
43 said rates and restraining the said defendants, take effect upon the filing of the aforesaid bond, and the approval thereof by the Clerk of this Court, but not within less than ten days hereof. Nothing in this order shall operate to prevent the said Railroad Commissioners of the State of Arkansas from establishing

and enforcing any reasonably compensatory and lawful rates in place of those whose enforcement is hereby inhibited.

Dated September 3rd. 1908.

(Signed) WILLIS VAN DEVANTER,
*Circuit Judge.*

44 And on September 24th. 1908, the following proceedings were had, to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the complainant, by Moore, Smith and Moore, and Buzbee and Hicks, Esqs., his solicitors, and files herein his bond in the sum of two hundred thousand dollars, ($200,000.00), with St. Louis and San Francisco Railroad Company and United States Fidelity and Guaranry Company as sureties, which is approved by the Clerk of this Court.

Which Bond is as follows:

In the Circuit Court of the United States for the Western Division of the Eastern District of Arkansas.

WILBUR F. BOYLE, Complainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, and ROBERT P. Allen, John W. Crockett and John E. Hampton, Railroad Commissioners of the State of Arkansas; W. W. Dickinson, and T. H. Bunch.

*Injunction Bond.*

Know all men by these presents, that we, Wilbur F. Boyle, of the City of St. Louis, State of Missouri, as principal, and St. Louis and San Francisco Railroad Company, a corporation of said
45 State of Missouri, and United States Fidelity and Guaranty Company, a corporation of the State of Maryland, as sureties, are held and firmly bound unto the United States of America, in the penal sum of Two Hundred Thousand Dollars ($200,000.00) for the payment of which well and truly to be made we hereby jointly, and severally, bind ourselves, and each of our successors, heirs, executors and administrators, firmly by these presents.

Sealed with our seals and dated this twelfth day of September, in the year of our Lord, one thousand nine hundred and eight, upon the conditions as follows:

Whereas, the said Wilbur F. Boyle, has heretofore filed his bill of complaint in the United States Circuit Court for the Western

Division of the Eastern District of Arkansas, against St. Louis and San Francisco Railroad Company, and Robert P. Allen, John W. Crockett and John E. Hampton, Railroad Commissioners of the State of Arkansas, and W. W. Dickinson and T. H. Bunch, defendants, praying, among other things, for an injunction to restrain the defendant, St. Louis and San Francisco Railroad Company, from continuing in force the rates for the transportation of passengers upon its lines of railway within the State of Arkansas, prescribed by the provisions of an Act of the Legislature of the State of Arkansas, approved February 9th, 1907, entitled:

"An Act to Amend Section 6611 of Kirby's Digest of the Statutes of Arkansas by Fixing *Fixing* Passenger Rates in this State and for Other Purposes."

and also prescribed in the order made by the defendants, the Railroad Commissioners of the State of Arkansas on May 15th. 1907, putting in force the rates prescribed by the aforesaid statute, and likewise to enjoin said defendant, St. Louis and San Francisco Railroad Company, from continuing in force the rates prescribed by
46 the defendants Robert P. Allen, John W. Crockett and John E. Hampton, Railroad Commissioners of the State of Arkansas, for transporting and carrying intrastate freight in said State, in Standard Freight Distance Tariff No. 3, which was issued by the order of said Commissioners, and which took effect on June 15th. 1908, with all amendments and supplements thereto, and further praying for an injunction to restrain the defendant, Robert P. Allen, John W. Crockett and John E. Hampton, Railroad Commissioners of the State of Arkansas, from putting in force or taking any step or action whatsoever looking to the putting or continuing in force or effect the aforesaid tariff of charges for the transportation of freight and passengers upon railway lines of St. Louis and San Francisco Railroad Company within the State of Arkansas, and to enjoin said last named defendants from enforcing or attempting to enforce the rates fixed by the orders of said Commission aforesaid respecting the carriage of freight and passengers within said State, and from enforcing or attempting to enforce, through any agency provided in the Statutes of the State of Arkansas or otherwise, any of the penalties prescribed by the Statutes of said State for a failure on the part of the said St. Louis and San Francisco Railroad Company to observe any of said rates, and enjoining said defendants, said Railroad Commissioners of the State of Arkansas, from instituting or causing to be instituted, prosecuting or causing to be prosecuted, the defendant, St. Louis and San Francisco Railroad Company, its officers, agents and employes, for or on account of said Railroad Company's failure to continue and keep in force any of the rates prescribed by the orders of the Commission afore-
47 said, and the Statutes of the State of Arkansas aforesaid; and further praying, among other things, for an injunction, restraining the defendants W. W. Dickinson, and T. H. Bunch, as shippers over and patrons of said defendants, St. Louis and San

Francisco Railroad Company, and as representatives of all other persons shipping or traveling over the lines of the said defendant, St. Louis and San Francisco Railroad Company, within the State of Arkansas, from instituting, or causing to be instituted, any suit or action for or on account of the failure of the defendant Railroad Company to keep in effect and observe the rates prescribed by the orders of the defendants, the Railroad Commissioners aforesaid, and the Act of the Legislature of the State of Arkansas aforesaid, and

Whereas, the Court has allowed an injunction as prayed for in said bill of complaint against the said defendants, pending the trial of said suit, and upon condition that the complainant execute a bond to the United States of America, in the penal sum of Two Hundred Thousand Dollars ($200,000.00), conditioned that the defendant Railroad Company shall keep a correct account showing as respects every carriage of freight or passengers, the difference between the tariff actually charged and that which would have been charged had the rates prescribed in the orders of the Commission and the legislative Act of the State of Arkansas aforesaid been applied, showing the particular carriage in question and the stations between which the same occurred, and the name of the person affected, so far as practicable, which record shall be made and kept subject to the further order of the Court, and further conditioned that if it shall eventually be decided that so much of this order as inhibits the enforcement of existing rates as prescribed in said
48 orders of said Commission and said Act of the Legislature of the State of Arkansas should not have been made, that said Railroad Company will, within a reasonable time to be fixed by the Court, refund in every instance to the party entitled thereto, the excess charge over what would have been charged had the inhibited rates been applied, with lawful interest and damages.

Now, therefore, the condition of the above obligation is such that if the above bounden, St. Louis and San Francisco Railroad Company, its successors or assigns, or any of them, shall well and truly keep, or cause to be kept, a correct account showing, as respects every carriage of passengers and freight, the difference betwen the tariff actually charged and that which would have been charged had the rates aforesaid inhibited by the injunctional order of the Court been applied, and showing the particular carriage in question, and the stations between which the same occurred, and the name of the person affected, so far as practicable, and shall further do, well and truly pay or cause to be refunded or paid to the party entitled thereto, the excess charge over that which would have been charged had the rates inhibited by said injunction been applied, with lawful interest and damages, in case it shall eventually be decided that so much of said injunctional order as inhibits the enforcement of the existing rates as prescribed by the orders of the said defendant, the Railroad Commissioners of the State of Arkansas aforesaid, and the Act of the Legislature of the State of Arkansas aforesaid should not have been issued and so much of said order shall eventually be dis-

solved, then the above obligation to be void, otherwise to be and remain in full force and virtue.

49 Signed and sealed in the presence of

(Signed) WILBUR F. BOYLE, [SEAL.]
*Principal,*
By JOHN M. MOORE,
*Attorney of Record.*
E. R. MILLER,
*Attorney in Fact.*
ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, [SEAL.]
*Surety,*
By C. R. GRAY,
*2nd Vice President.*

Attest:
F. H. HAMILTON, *Secretary.*

UNITED STATES FIDELITY & GUARANTY COMPANY, [SEAL.]
*Surety,*
By C. P. PERRIE,
J. F. LOUGHBOROUGH,
*Attorneys in Fact.*

Approved as sufficient.
Sept. 24th, 1908.
W. P. FEILD, *Clerk.*

Endorsed: Filed Sept. 24th. 1908. W. P. Feild, Clerk.

50 And on October 5th. 1908, the following proceedings were had, to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY et al.

Come the parties hereto by their respective solicitors, and file herein their written stipulation extending the time in which to file replication to the Rule Day in November next.

Which Stipulation of Counsel is as follows:

51 In the Circuit Court of the United States for the Western Division of the Eastern District of Arkansas.

In Chancery.

WILBUR F. BOYLE, Compainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al., Defendants.

*Stipulation.*

It is stipulated between counsel that the time for filing the replication in said cause may be postponed until the November Rules.

(Signed) MOORE, SMITH & MOORE,
*Attorneys for Complainant.*
MORRIS M. COHN,
*Attorney for Defendants.*

Endorsed: Filed October 5th. 1908. W. P. Feild, Clerk.

52 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 20th day of October, Anno Domini, One Thousand, Nine Hundred and Eight, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: Nov. 2nd. 1908.

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the plaintiff by Moore, Smith & Moore, Esqs., his solicitors and files herein his replication to the answer of the defendants.
Which Replication is as follows:

In the Circuit Court of the United States for the Western Division of the Eastern District of Arkansas.

WILBUR F. BOYLE, Complainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al., Defendants.

*Replication.*

This replicant, Wilbur F. Boyle, saving and reserving to himself all and all manner of advantages of exceptions which may be had and taken to the manifold errors, uncertainties and insufficiencies of the defendants, Robert P. Allen, John W. Crockett and
53 John E. Hampton, for replication thereunto saith that he doth and will aver, maintain and prove his said bill to be true, certain and sufficient in the law to be answered unto by the said defendants, and that the answer of the said defendants is very uncertain, evasive and insufficient in law to be replied unto by this replicant; without that, that any other matter or thing in the said answer contained, material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true; all of which matters and things this replicant is ready to aver, maintain and prove, as this Honorable Court shall direct and humb-y prays as in and by his said bill he hath already prayed.

(Signed) MOORE, SMITH & MOORE,
*Solicitors for Complainant.*

Endorsed: Filed Nov. 2nd. 1908. W. P. Feild, Clerk.

54 UNITED STATES OF AMERICA.
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 20th day of October, Anno Domini, One Thousand, Nine Hundred and Eight at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on February 4th. 1909:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Come Morris M. Cohn and Rose, Hemingway, Cantrell and Loughborough, Esqs., and file herein their petition asking leave of the

Court to withdraw further appearance as counsel for the defendants herein, and the Court being sufficiently advised in the premises doth grant said petition and said solicitors are permitted to withdraw from the cause.

Which Petition is as follows:

In the Circuit Court of the United States for the Western Division of the Eastern District of Arkansas.

WILBUR F. BOYLE, Complainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al., Defendants.

55 Come the undersigned and withdraw their further appearance for the defendants, Robert P. Allen, John W. Crockett and John E. Hampton, as Railroad Commissioners of the State of Arkansas, they being no longer connected with the cause as attorneys for said defendants.

(Signed) MORRIS M. COHN,
ROSE, HEMINGWAY, CANTRELL & LOUGHBOROUGH.

Endorsed: Filed Feby. 4th. 1909. W. P. Feild, Clerk.

56 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 5th day of April, Anno Domini, One Thousand, Nine Hundred and Nine, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: June 14th. 1909:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the complainant by John M. Moore, Esq., his solicitor, and comes the defendant St. Louis and San Francisco Railroad Company, by W. F. Evans and Thomas S. Buzbee, Esqs., its solicitors, and comes the defendant the Railroad Commission to Arkansas, by Hal. L. Norwood, Attorney General and Joseph M. Hill, W. F. Kirby and J. H. Harrod, Esqs., Special Counsel, and agree that the following order may be made in this cause, and thereupon by consent it is ordered:

First. The Court Tariff made effective by order of this Court June 2nd, 1909, with the supplemental coal, rough material and town switching tariffs, made pursuant to the order of this Court, shall be given a fair test for one year beginning June 1st. 1909.

Second. The suit is hereby dismissed without liability upon the injunction bond unless the suit is reinstated as hereinafter provided in the sixth and seventh paragraphs of this order; and after
57 twenty days from the expiration of said year if the suit is not reinstated by either party the temporary injunction against the two cent passenger rate Act of 1907 shall be made permanent, and until the expiration of said time for reinstatement the temporary injunction against said passenger rate is continued.

Third. The defendant, the St. Louis and San Francisco Railroad Company shall, during the said year the said Court Tariff is being tested, keep a separate account of all state traffic, both of operating expenses and revenue, and furnish the Railroad Commission detailed reports thereof monthly, and keep its books and accounts open at all reasonable times to the inspection of the Commission, its counsel and experts. The form of the report shall be in accordance with the memoranda herewith filed as a part of this order marked "Exhibit A". This form of accounting for the operating expenses is not accepted by either side as a proper basis for separating interstate and intrastate expenses, but is used as a method of separating the items constituting such expense in order that the relevancy of each may be considered separately.

Fourth. The Commission is at liberty to re-adjust and correct any inequality or injustice in the Court Tariff, and to make and change rates to meet new conditions and emergencies, but so as not to materially disturb the revenue producing effect of said tariff.

Fifth. Said St. Louis and San Francisco Railroad Company shall maintain a passenger rate of not exceeding two and one half cents per mile during said year commencing June 1st, 1909.
58 Sixth. At the end of the year either party may reinstate the suit and proceed with the litigation as though it had not been dismissed. The plaintiff, Boyle, the defendant, Railway Company, or the defendant, Railroad Commission, or either of them, may reinstate this suit after June 1st, 1910, and not later than June 20th, 1910, and if not reinstated by June 20th, 1910, the right to reinstate shall be barred. If neither party reinstate the suit within said time, then a final order shall be entered making permanent the temporary injunction against the two cent passenger rate Act of 1907, and finally dismissing the suit without prejudice as to all other matters and releasing the injunction bond. It is expressly understood that in the event the suit is reinstated and proceeds to a final hearing and it is finally adjudged that the temporary injunction against the freight and passenger rates be dissolved, the plaintiff herein and the defendant, St. Louis and San Francisco Railroad Company and the injunction bond shall be liable for all charges for freight and passengers carried above the rates in Standard Distance Tariff No. 3 and the two cent passenger rate Act of 1907, to the same effect as if the suit had not been dismissed

and as if the rates in the Court Tariff were voluntarily made by defendant Railroad Company.

Seventh. If either party violates any part of this agreement, such violation shall be cause for reinstatement of the suit upon the application of the other party or either of them to the Court and satisfying the Court of such violation.

(Signed) JACOB TRIEBER, *Judge.*

59 "EXHIBIT A."

(Sheet 1.)

.....

(Name of Company Reporting.)

*Statement of Revenue, Operating Expenses, Taxes, etc., in the State of Arkansas, for the Month of* ——, 190–.

| | Freight. | Passenger. | Total. |
|---|---|---|---|
| Intrastate Traffic: | | | |
| Tons of Freight and number of Passengers carried | .... | .... | .... |
| Same Carried One Mile | .... | .... | .... |
| Interstate Traffic: | | | |
| Tons of Freight and number of Passengers carried | .... | .... | .... |
| Same Carried One Mile | .... | .... | .... |
| Revenue: | | | |
| Intrastate Traffic | .... | .... | .... |
| Interstate Traffic | .... | .... | .... |
| Mail | .... | .... | .... |
| Express | .... | .... | .... |
| Miscellaneous | .... | .... | .... |
| Total Revenue | .... | .... | .... |
| Operating Expenses, Texes, etc.: | | | |
| Maintenance of Way and Structures | .... | .... | .... |
| Maintenance of Equipment | .... | .... | .... |
| Traffic Expenses | .... | .... | .... |
| Transportation Expenses | .... | .... | .... |
| General Expenses | .... | .... | .... |
| Total Operating Expenses | .... | .... | .... |
| Taxes | .... | .... | .... |
| Rentals | .... | .... | .... |
| Hire of Equipment | .... | .... | .... |
| Total Operating Expenses, Taxes, etc. | .... | .... | .... |
| **Net Earnings** | .... | .... | .... |

(Sheet 2.)

.....
(Name of Reporting Company.)

*Statement of Intrastate Freight Earnings in Arkansas, by Commodities and Classes, for the Month of* ——, 190–, *and Comparison With Revenue on Same Commodities and Classes at Inhibited Rates.*

| | Tons carried. | Tons carried one mile. | Revenue. | Revenue at inhibited rates. | Increase. | Percentage of increase. |
|---|---|---|---|---|---|---|
| 1. Grain | ..... | ..... | ..... | ..... | ..... | ..... |
| 2. Hay and Straw | ..... | ..... | ..... | ..... | ..... | ..... |
| 3. Cotton | ..... | ..... | ..... | ..... | ..... | ..... |
| 4. Fruit and Vegetables | ..... | ..... | ..... | ..... | ..... | ..... |
| 5. Coal | ..... | ..... | ..... | ..... | ..... | ..... |
| 6. Stone, Sand and Other Like Articles | ..... | ..... | ..... | ..... | ..... | ..... |
| 7. Lumber | ..... | ..... | ..... | ..... | ..... | ..... |
| 8. Other Products of the Forest | ..... | ..... | ..... | ..... | ..... | ..... |
| 9. Petroleum and Other Oils | ..... | ..... | ..... | ..... | ..... | ..... |
| 10. Brick | ..... | ..... | ..... | ..... | ..... | ..... |
| 11. Lime | ..... | ..... | ..... | ..... | ..... | ..... |
| 12. Class 1 | ..... | ..... | ..... | ..... | ..... | ..... |
| 13. Class 2 | ..... | ..... | ..... | ..... | ..... | ..... |
| 14. Class 3 | ..... | ..... | ..... | ..... | ..... | ..... |
| 15. Class 4 | ..... | ..... | ..... | ..... | ..... | ..... |
| 16. Class 5 | ..... | ..... | ..... | ..... | ..... | ..... |
| 17. Class A | ..... | ..... | ..... | ..... | ..... | ..... |

Statement of Intrastate Freight Earnings, etc.—*Continued.*

| | Tons carried. | Tons carried one mile. | Revenue. | Revenue at inhibited rates. | Increase. | Percentage of increase. |
|---|---|---|---|---|---|---|
| 18. Class B | ..... | ..... | ..... | ..... | ..... | ..... |
| 19. Class C | ..... | ..... | ..... | ..... | ..... | ..... |
| 20. Class D | ..... | ..... | ..... | ..... | ..... | ..... |
| 21. Class E | ..... | ..... | ..... | ..... | ..... | ..... |
| 22. Miscellaneous (All Commodities not Listed above) | ..... | ..... | ..... | ..... | ..... | ..... |
| Total | ..... | ..... | ..... | ..... | ..... | ..... |

61 .....
(Name of Reporting Company.)

*Formula for Dividing Earnings and Expenses Between States, and Between Freight and Passenger Business.*

Earnings.

The operating Revenues of the Company are divided into nineteen accounts, as prescribed by the Interstate Commerce Commission. These Revenues are shown in Exhibit 1, as follows:

(1) Freight Revenue.
(2) Passenger Revenue.
(3) to (19) Miscellaneous or all other Revenues.

The Revenue from freight and passengers moving wholly within the State in credited to the State under "State" Revenue. The Revenue from freight and passengers moving partly in Arkansas, and partly in another State, or States, is divided between the States through which the shipment or passengers moved upon a straight pro rata per mile basis, and the Arkansas proportion credited to the State under "Interstate" Revenue.

All classes of miscellaneous revenue which can be localized to the State of Arkansas have been credited accordingly.

Miscellaneous revenue which cannot be localized to the State of Arkansas has been divided as follows:

Mail revenue on a track mileage pro rate for each mail route; all treated as miscellaneous passenger revenue.

Other passenger train revenue on a basis of revenue passenger train miles; all treated as miscellaneous passenger revenue.

Express revenue on a basis of loaded express car miles; all treated as miscellaneous passenger revenue.

62 Special service train revenue on actual mileage pro rate allotted to miscellaneous "freight" or "passenger", according to the class of service.

Miscellaneous transportation revenue localized as regards State; allotted to miscellaneous "freight" or "passenger" according to the class of service.

Station and train privileges on bases of revenue passenger train miles; all treated as miscellaneous passenger revenue.

Rents of buildings and other property localized as regards State; allotted to miscellaneous "freight" or "passenger" revenue on basis of total freight and passenger revenue.

Miscellaneous, localized as regards State; allotted to miscellaneous "freight" or "passenger" on basis of total freight and passenger revenue.

Operating Expenses.

Each item of operating expenses is assigned to "freight" or "passenger" direct, when possible; items that are common to both freight and passenger are divided on basis of total freight and passenger revenue train miles, except in the case of yard expenses a division

is made on an arbitrary basis of time devoted to freight and passenger service at each point.

In the division between State, each item of expense is localized when possible, and when common to two or more States, division is made on the following bases:

Maintenance of way and structures, on a track mileage pro rate.

Maintenance of Equipment, on a basis of revenue train
63 mile, or locomotive mile, or passenger car miles, or freight car miles, according to the item.

Traffic Expenses, on a basis of total revenue freight or passenger train miles, according to the item.

Transportation Expenses, on a basis of revenue train miles, or locomotive miles, or freight train miles, or passenger train miles, according to the item.

General Expenses, on a basis of total revenue train miles.

## Taxes.

Taxes are localized as to States and allotted to "freight" and "passenger" on basis of total freight and passenger revenue.

## Rentals.

Rentals are localized as to States and also as to "freight" and "passenger", when possible; when common to both freight and passenger division is made on basis of total freight and passenger revenue.

Hire of Equipment shows a debit balance and is localized as between "freight" and "passenger", and divided between States on the following bases:

Freight Cars, on revenue freight car miles.

Passenger Cars, on revenue passenger car miles.

Freight Locomotives, on revenue freight locomotive miles.

Passenger Locomotives, on revenue passenger locomotive miles.

Work, Freight car miles.

64 UNITED STATES OF AMERICA,
*Eastern District of Arkansas,*
*Western Division:*

Be it remembered, That at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 4th day of April, Anno Domini One Thousand Nine Hundred and Ten, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit, on June 11th, 1910:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Now on this day comes the complainant, by John M. Moore, Esq., his solicitor, and comes the defendant, St. Louis and San Francisco Railroad Company, by W. F. Evans and Thomas S. Buzbee, Esqs., its solicitors, and comes the defendant, the Railroad Commission of Arkansas, by Hal L. Norwood, attorney General, Joseph M. Hill, W. F. Kirby and J. H. Harrod, Esqs., Special Counsel, and by consent it is ordered that *the* this cause be and is hereby reinstated to stand on the docket for further orders and proceedings therein.

And thereupon, by consent of all parties, it is ordered:

First. That the Court Tariff made effective by the order of this Court June 2nd, 1909, with the supplemental coal, rough material and town switching tariffs, made pursuant to the order of this Court, shall be given a fair test from the 1st day of June, 1909 to
65 the 1st day of September, 1910.

Second. This suit is hereby dismissed without liability upon the injunction bond unless the suit is reinstated as hereinafter provided in the sixth and seventh paragraphs of this order, and if the suit is not reinstated by the parties, or either of them, within the period mentioned in the sixth paragraph of this order, the temporary injunction against the two cent passenger rate Act of 1907, shall be made permanent, and until the expiration of said time for reinstatement the temporary injunction against said passenger rate Act is continued.

Third. The defendant, St. Louis and San Francisco Railroad Company, shall, during the said period that said Court Tariff is being tested, keep a separate account of all state traffic, both of operating expenses and revenue, and furnish the Railroad Commission detailed reports thereof monthly, and keep its books and accounts open at all reasonable times to the inspection of the Commission, its counsel and experts. The form of the report shall be in accordance with the memoranda herewith filed as a part of this order marked "Exhibit A". This form of accounting for the operating expenses is not accepted by either side as a proper basis for separating interstate and intrastate expenses, but is used as a method of separating the items constituting such expenses in order that the relevancy of each may be considered separately.

Fourth. The Commission is at liberty to re-adjust and correct any inequality or injustice in the Court Tariff and to make and change rates to meet new conditions and emergencies, but so as not to materially disturb the revenue producing effect of said Tariff.

66 Fifth. Said St. Louis and San Francisco Railroad Company shall maintain a passenger rate of not exceeding two and one half cents per mile during said period commencing June 1st, 1909.

Sixth. At the end of said period from the 1st day of June, 1909 to the 1st day of September, 1910, and within the period herein named, either party may reinstate the suit and proceed with the litigation as though it had not been dismissed, the complainant, Boyle, the defendant, Railroad Company, or the defendant, Railroad Commission, or either of them, may reinstate this suit after September 1st, 1910, and not later than October 20th, 1910, the right to reinstate it shall be barred. If neither party reinstates the suit within said time then a final order shall be entered making permanent the temporary injunction against the two cent passenger rate act of 1907, and finally dismissing the suit without prejudice as to the other matters and releasing the injunction bond. It is expressly understood that in the event the suit is reinstated and proceeds to a final hearing, and it is finally adjudged that the temporary injunction against the freight and passenger rate be dissolved, the complainant herein and the defendant St. Louis and San Francisco Railroad Company and the injunction bond shall be liable for all charges for freight and passengers carried above the rates in Standard Distance Tariff No. 3, and the two cent passenger rate Act of 1907, to the same effect as if the suit had not been dismissed, and as if the rates in the Court Tariff were voluntarily made by the defendant Railroad Company.

Seventh. If either party violates any part of this agreement such violation shall be cause for reinstatement of the suit
67 upon the application of the other party, or either of them, to the Court, and satisfying the Court of such violation.

Eighth. If this suit shall be reinstated, each party may use the evidence that may have been taken in the suits of the St. Louis, Iron Mountain and Southern Railway Company and St. Louis Southwestern Railway Company in the cases now pending in this Court as far as the same may be material and relevant in this case.

(Signed) JACOB TRIEBER, *Judge.*

For Exhibit "A" to the above order see page — this Record.

And on October 12th, 1910, the following proceedings were had, to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the defendant, Railroad Commission of Arkansas, by Joseph M. Hill, William F. Kirby and James H. Harrod, Esqs., its solicitors, and files herein its motion to preserve the status quo of the parties to this suit pending the termination of the Iron Mountain and Cotton Belt cases, and that the defendant Railroad Company be restrained from putting in force the three cent passenger rate.

Which Motion of the Railroad Commission is as follows:

68 In the United States Circuit Court for the Eastern District of Arkansas.

WILBUR F. BOYLE, Plaintiff,
vs.
ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, Defendant.

Comes W. A. Falconer, Chairman, R. P. Allen and J. W. Crockett, Commissioners, constituting the Railroad Commission of the State of Arkansas, and respectfully represent to the Court that shortly after the termination of the hearing before this Honorable Court, wherein it was adjudged that the freight rates put in force by the St. Louis & San Francisco Railroad, and other railroads, after they obtained an injunction from Honorable Willis Van Devanter, Circuit Judge, against Standard Distance Tariff No. 3, were unreasonable, that the said Frisco Railroad Company and the Railroad Commission of Arkansas, pursuant to instructions of this Honorable Court, agreed upon a freight tariff to be in force pending a hearing of the various injunctions suits involving the freight and passenger rates. That said freight tariff was known as "Court Tariff" and became operative June 1, 1909. That at the hearings

69 aforesaid this Honorable Court declined to declare unreasonable the three cent passenger rate which had been put in force by various railroads after obtaining an injunction by the Circuit Judge aforesaid against the two cent passenger fare act passed by the General Assembly. That shortly after said decision said Frisco Railroad voluntarily reduced the passenger fare to 2½ cents per mile; that an agreement was reached by and between the Frisco Railroad and the Railroad Commission, by the terms of which the injunction suit herein was dismissed, subject to reinstatement by either party after the expiration of one year, and during said year said Frisco Railroad was to keep in force the court tariff, and the 2½ cent passenger rate, and make monthly reports to the Railroad Commission of the revenue derived from its freight traffic, divided according to a form agreed upon between the state and the railroads as to which commodities should be shown. That owing to the system of accounting kept by the railroads they were unable to furnish the Commission reports of the intrastate expenses, but the said Railroad Company has furnished during the year mentioned monthly reports of revenue.

That at the expiration of one year by stipulation the agreement aforesaid was continued until the first of September, 1910, with leave to either party to reinstate the suit on or before October 20, 1910.

That on or about September 1, 1910, the Frisco Railroad Company notified the Commission that it intended to resume the three cent passenger fare. The Commission requested said Railroad to have a conference with it and submit to it data and statistics showing wherein they were entitled to an increase in said passenger fare;

said Railroad Company did submit to the Commission var-
70 ious statistics, but did not submit any statistics showing a separation of state and interstate expenses, other than an attempt to do so on the so-called "revenue theory."

That the Commission had the statistics submitted by the Frisco Railroad Company carefully examined by expert accountants; and had the earnings, state and interstate, freight and passenger and miscellaneous, carefully separated, and the expense of each apportioned according to the best accounting methods with which the Commission was acquainted. The Frisco Railroad was unable to furnish any basis for the separation of the various classes of traffic other than the revenue theory.

That in the testimony which has been taken in the cases of St. Louis, Iron Mountain & Southern Railway and the St. Louis Southwestern Railway against this Commission (which testimony in said cases by stipulation may be read as testimony in this case, so far as applicable) it has been demonstrated by a large preponderance of the evidence that whatever value the revenue theory may have generally for dividing expenses between state and interstate traffic, so far as the expenses in Arkansas are concerned it is an absurdity to attempt to divide them on the basis of revenue, owing to the varying, unequal, fluctuating rates prevailing in Arkansas.

That in the testimony in the aforesaid rate cases careful statistics have been prepared of actual operating expenses on the Iron Mountain and Cotton Belt Railroads, all expenses possible to be localized have been localized; and those not localized have been ap-
71 portioned according to the best and most applicable factors for the apportionment of each class of expense. In the apportionment of these expenses the state's accountants have uniformly used the maximums in favor of the railroads, and in that way the factors represent a higher percentage of expense apportioned to state traffic than the evidence really justifies.

Taking the factors developed in the actual localization of expenses and the apportionment of same according to the testimony in said cases, and applying to each factor most nearly representing the conditions on the Frisco Railroad, and applying the same to the revenue for the seven months ended December 31, 1909, the result is that the Frisco Railroad is earning a return on its property of:

4.18% on state passenger business, and
3.57% on interstate " "
On state freight business it is earning 8.74%
On interstate " " " " " 4.64%
On its total state business it is earning 6.06%

In fact, owing to the use of the maximums against the state in obtaining these factors it is apparent that the Frisco Railroad on its total state freight and passenger business is earning considerably more than six per cent. That owing to the lack of density of passenger and freight traffic on the Frisco Railroad as compared with the Iron Mountain and Cotton Belt, the Frisco Railroad is enabled

to earn, under the same tariffs as the Iron Mountain and Cotton Belt, a large passenger and freight revenue.

In the hearing before this Honorable Court heretofore, when the Iron Mountain and Cotton Belt Railroads submitted statistics showing that they had increased their revenue forty-two per cent under the state rates promulgated by themselves jointly with the Frisco Railroad, the Frisco Railroad showed an increase under those
72 same rates of about twenty-one per cent.

That the failure of the Frisco Railroad to earn more on its state freight traffic is not due to the rates which were amply sufficient, but is due to conditions on said railroad. That should the rates be made higher than those allowed in the Court's tariff the result would be prohibitive to the movement of freight and would not create an increase in the revenue of the Company.

That said Frisco Railroad has not asked the Commission to increase its freight rates, but asked permission to increase only its passenger rates from two and one-half cents to three cents per mile.

In view of the facts aforesaid, the Railroad Commission alleges that a further increase of passenger fare of twenty per cent would be unreasonable, oppressive and burdensome to the people of the state. That if said Frisco Railroad is not making sufficient revenue from its passenger traffic, it is due to the low revenue from the interstate traffic and the fact that it did not increase its interstate passenger rate proportionately to its state passenger rate.

The Commission further states that the rate litigation with the other railroads, which will determine the proper basis for the apportionment of these expenses, is now nearing completion and will shortly be ready for submission to this Honorable Court.

The said Frisco Railroad Company has given this Commission notice that it will on November 14, 1910, resume the three cent passenger rate in Arkansas.

73 The Commission respectfully petitions this Honorable Court to preserve the status quo of the parties to this suit pending the termination of the Iron Mountain and Cotton Belt cases, and prays that an order be made restraining the Frisco Railroad Company from putting in force the three cent passenger rate until further orders of this Court.

JOS. M. HILL,
W. F. KIRBY,
J. H. HARROD,
*Attorneys for the Railroad Commission.*

Endorsed: Filed Oct. 12th. 1910. W. P. Feild, Clerk.

74 And on October 13th. 1910, the following proceedings were had, to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the complainant, by Moore, Smith & Moore, Esqs., his solicitors, and comes the defendant Railroad Company, by Thomas S. Buzbee, Esq., its solicitor, and comes the defendant Railroad Commission of the State of Arkansas, by Joseph M. Hill, William F. Kirby and James H. Harrod, Esqs., its solicitors, and said Railroad Commission, by its said solicitors, and asks leave of the Court to reinstate this cause in accordance with the provisions of the order of agreement heretofore entered herein, and the Court being well and sufficiently advised in the premises doth grant such leave, and said cause is now reinstated, and will be proceeded with in the regular order.

75 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 17th day of October, Anno Domini, One Thousand, Nine Hundred and Ten, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: October 21st, 1910:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the complainant, by Moore, Smith and Moore, Esqs., his solicitors, and come the defendants, Robert P. Allen, et al., Railroad Commissioners of the State of Arkansas, by Joseph M. Hill and William F. Kirby, Esqs., their solicitors, and by consent of parties it is ordered that each party to this cause may use the evidence that may hereafter be taken in the suits of the St. Louis, Iron Mountain and Southern Railway Company and St. Louis Southwestern Railway Company against Robert P. Allen, et al., now pending in this Court, so far as the same may be material and relevant to this cause.

(Signed) JACOB TRIEBER, *Judge.*

And on January 9th, 1911, the following proceedings were had, to-wit:

No. 1638.

WILBUR F. BOYLE
vs.
76 ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, ROBERT P. ALLEN, JOHN W. CROCKETT, AND JOHN E. HAMPTON, Railroad Commissioners of the State of Arkansas, et al.

Comes the complainant, by Moore, Smith and Moore, Esqs., his solicitors, and comes the defendant, Railroad Commission of the State of Arkansas, by Joseph M. Hill, and James H. Harrod, Esqs., their solicitors, and it being made to appear to the Court that the term of office of John W. Crockett and John E. Hampton, Railroad Commissioners of the State of Arkansas, defendants herein, has expired, and that under the laws of the State of Arkansas, William F. McKnight and George W. Bellamy, have been elected to succeed said John W. Crockett and John E. Hampton, as Railroad Commissioners of the State of Arkansas, and have qualified and are now acting as such.

It is now ordered by the Court, by consent of the parties hereto, that the names of William F. McKnight and George W. Bellamy be substituted for that of John W. Crockett and John E. Hampton, and that this cause abate as to said Crockett and Hampton and progress in the names of William F. McKnight and George W. Bellamy substituted as defendants as aforesaid.

77 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a Circuit Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 3rd day of April, Anno Domini, One Thousand, Nine Hundred and Eleven, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on June 27th. 1911:

No. 1638.

WILBUR F. BOYLE
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Now on this day come the parties to said cause, the plaintiff by his solicitor, John M. Moore, Esq., and the defendant, St. Louis and San Francisco Railroad Company, by Thomas S. Buzbee, Esq., and the other defendants by their solicitors, Joseph M. Hill, and James H. Harrod, Esqs., and the death of the plaintiff, Wilbur F. Boyle, is suggested and it is admitted by all parties that he died at his residence in the City of St. Louis, State of Missouri, on the — day of

——, 1911, and that Sidney E. Boyle was duly appointed the executrix of his last will by the Court exercising probate jurisdiction in the City and County of St. Louis. Thereupon all the parties to this proceeding waived the filing of a bill of revivor for the purpose of reviving and continuing the said action in the name of the executrix, and by consent of all parties it is ordered that said cause be revived and proceed in the name of the said Sidney E. Boyle, as executrix of the last will of the said Wilbur F. Boyle, as
78 plaintiff herein.

(Signed) JACOB TRIEBER, *Judge.*

And on June 26th. 1911, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, etc.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

By consent of parties, it is hereby ordered that this cause be continued pending the decision of the Supreme Court of the United States in the case of St. Louis, Iron Mountain and Southern Railway Company against Robert P. Allen, et al., subject, however, to the right of either party to set aside the continuance and *and* have such further orders as may be desired, upon thirty days' notice to the other party.

(Signed) JACOB TRIEBER, *Judge.*

79 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered, that at a District Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 7th day of April, Anno Domini, One Thousand, Nine Hundred and Thirteen, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on July 19th. 1913:

No. 1638.

SIDNEY E. BOYLE, &c.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the plaintiff and the defendant, St. Louis and San Francisco Railroad Company, by their solicitor, John M. Moore, Esq., and comes the Railroad Commission of Arkansas, by their solicitor, Joseph M. Hill, Esq., and by consent J. Sam Rowland is substituted as defendant herein for Robert P. Allen, the said J. Sam Rowland

having succeeded the said Robert P. Allen as Railroad Commissioner.

And after consideration by the Court is is ordered that the complainant herein complete his testimony in chief on or before November 1st. 1913.

(Signed) JACOB TRIEBER, *Judge.*

80 And on July 23rd. 1913, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, etc.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the defendant, Railroad Commission of the State of Arkansas, by Joseph M. Hill, Esq., its solicitor and files herein its motion to dissolve the temporary injunction herein.

Which Motion to Dissolve the Injunction is as follows:

In the United States District Court for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, Executrix of the Estate of Wilbur F. Boyle, Plaintiff,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY and RAILROAD COMMISSION OF THE STATE OF ARKANSAS et al., Defendants.

Come the defendants herein, George W. Bellamy, William F. McKnight and J. Sam Rowland, Railroad Commissioners of the State of Arkansas, and move the Court to dissolve the temporary injunction herein and for cause thereof say:

That the temporary injunction was granted by the Hon. Willis Van Devanter, then Circuit Judge, on the — day of Sep-
81 tember, 1908.

That the defendants' predecessors as Railroad Commissioners have filed answer herein denying each of the material allegations of the complaint and alleging that the rates sought to be enjoined by said bill were not confiscatory.

That the temporary injunction herein was continued by the Hon. Jacob Trieber, District Judge, by orders made in June, 1909, imposing conditions for the continuance thereof by requiring a reduction of freight rates pending the litigation, which reduction was made and in lieu of the rates put in force after the first injunction was granted, the Court Tariff was made effective on all intrastate freight shipped within the State of Arkansas and continues now in effect.

That said Court Tariff was framed under the directions of said District Judge that a tariff should be framed producing thirty-three

and one-third per cent income over that produced by Standard Freight Distance Tariff No. 3, the enjoined Freight Tariff.

That similar injunctions were garnted in behalf of the St. Louis, Iron Mountain and Southern Railway Company and the St. Louis Southwestern Railway Company.

This cause was passed until the Supreme Court of the United States finally determined the Iron Mountain and St. Louis Southwestern Railway Cases, which were carried there by appeal by the Railroad Commissioners from a decree of this Court making perpetual the temporary injunctions in those cases.

The Supreme Court of the United States on June 16th, 1913, reversed the decrees in said St. Louis Southwestern and Iron
82 Mountain Railway Companies cases and directed that the bills of said railroads be dismissed, which was done by this Court on the 19th day of July, 1913.

That on the 18th day of June, 1913, this complainant and defendant railroad were notified by these defendants that they would move for a dissolution of the injunction herein and asked for a date for the hearing thereof to be set. In pursuance of which action this motion is filed.

Defendants state that the temporary injunction herein was secured upon affidavits which alleged that the revenue produced from freight and passenger rates enforced by the State of Arkansas were confiscatory and they used this method of making the calculation to show that the revenues produced a return on the property, which was confiscatory, to-wit:

The property used by the railroad in the State of Arkansas was divided between interstate and intrastate traffic by taking the gross revenue derived from each and dividing the property according to the proportion they bore to each other, assigning to the intrastate traffic so much of the property as the intrastate revenue bore to the whole revenue derived from the Arkansas Traffic.

That the expenses between the intrastate and interstate traffic were divided by the same method. In addition thereto there were numerous affidavits filed by the railroad officials testifying that in their opinion the intrastate freight and passenger traffic cost more than the interstate freight and passenger traffic. The calculations were made upon a basis of twenty-five per cent extra cost of intra-
83 state passenger traffic and one hundred per cent of freight traffic.

That the only evidence of the value of the railroad property in the State of Arkansas was the assessment of the property for taxation.

The Supreme Court of the United States has in the State Rate Cases determined that the revenue basis for dividing the property and expenses is unsound and unreliable and that this method cannot to be used for the purpose of dividing property and expenses, thereby showing that the revenues derived from the rates in question are confiscatory.

That said Court also held that the opinion evidence of eminent railroad officials to the effect that intrastate passenger and freight

traffic was more expensive than interstate freight and passenger traffic was too uncertain and vague to be the basis of the finding that the rates prescribed by a State were confiscatory.

The said Court also decided that the valuation of property for taxation purposes was insufficient evidence of the value of the property to be a basis upon which to show the return of property to be confiscatory.

That the injunction obtained in this cause was obtained solely upon the class of testimony condemned by the Supreme Court of the United States in said cases and the Hon. Willis Van Devanter who granted the injunction herein, as a member of the Supreme Court of the United States concurred in the opinion in the State Rate cases, which condemned as insufficient and unreliable the class of testimony upon which the injunction herein was obtained.

That the Supreme Court of the United States in the Minnesota and Missouri Rate Cases decided in regard to several railroads that notwithstanding the error in the method pursued by the
84 railroad as above outlined, that where the facts show that in any event the rates were confiscatory that the injunctions should be perpetuated, but the defendants allege that this is not such a case as those referred to in the Minnesota and Missouri Rate Cases.

That Exhibit "A," filed by A. Douglas, fourth Vice President and General Auditor of the defendant railroad company shows that for a period of four months ending December 31st, 1907, the net revenue derived from traffic in the State of Arkansas, (including interest, which in said statement is improperly charged to operating expenses) amounts to the sum of $171,211.39, which represented an annual net earning of $513,634.17.

The affidavit of R. T. Booth filed on behalf of the defendant railroad company, shows that the assessed value of the property of the railroad in the State of Arkansas for the years 1907-1908 was $6,954,844.00. The said net income represents a net return upon the assessed value of the property of nearly eight per cent.

That it was shown in the Iron Mountain and St. Louis Southwestern Railway Company cases, the evidence in which, by stipulation, is admissible in this case, that the panic of 1907 seriously affected the railroad earnings for the months of November and December, 1907, and it is therefore apparent that the earnings of the four months relied upon by the complainant are not a fair test of the earnings of said road and the Supreme Court in the State Rate Cases has held that the evidence must be convincing as shown by test periods of time and Bulletin No. 53 of the Interstate Commerce Commission showing the revenues and expenses of steam roads in the United States, showing that for ten months of the fiscal
85 year of 1912-1913 the net revenue per mile of road operated by the defendant road was $2,287.00, which would represent a net revenue per mile of road for the year ending June 30th, 1913, of $2,744.40.

The Bill of Complaint herein shows that the defendant road operates 591.95 miles of road in the State of Arkansas, which at the

rate of earning shown by said bulletin would represent an annual net earning for the year ended June 30th. 1913, of $1,624,448.00 which represents seven per cent return on the valuation of the property at $40,000.00 per mile.

That the continuance of this injunction herein authorizes the defendant railroad to charge freight rates promulgated by the Court Tariff, which is supposed to represent thirty-three and one-third per cent more revenue than Standard Distance Tariff No. 3, which in fact, these defendants are informed and believe represent about twenty-five per cent.

That the continuance of the temporary injunction permits the defendant road to charge more than two cents per mile for passenger traffic but said road did on the 15th day of July, 1913, put in a two cent rate but so long as said temporary injunction is undissolved, it cannot be required to keep said two cent rate in force.

Wherefore it is prayed that the temporary injunction herein be dissolved.

(Signed) JOS. M. HILL,
*Attorney for the Railroad Commission.*

Endorsed: Filed July 23rd. 1913. Sid. B. Redding, Clerk, By W. P. Feild, Jr. D. C.

86 And on October 17th, 1913, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, &c.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Now on this day is presented the petition of the complainant for an extension of the time within which he is to begin taking proofs in this cause, the parties appearing by their respective solicitors, and complainant announcing in open Court that if said extension of time is granted the defendant Railway Company will continue in force the tariffs for freight and passengers now or hereafter established by the State Railroad Commission of Arkansas, and in all other respects comply with all lawful orders of said Commissioners except as it may be relieved by the orders of this or any other Court of competent jurisdiction in an independent proceeding instituted by complainant therefor. This order is to be without prejudice to complainant's rights under the temporary injunctions heretofore granted by this Court and still in force, if upon final hearing the injunctions are made perpetual.

Thereupon it is ordered by the Court that upon the defendant Railway Company carrying into effect said proposition and complying therewith until the final hearing of this cause, the complainant have until January 5th, 1914, to begin taking its proofs and then continue from day to day until the same is completed.

(Signed) JACOB TRIEBER, *Judge.*

87 UNITED STATES OF AMERICA,
*Eastern District of Arkansas,*
*Western Division:*

Be it Remembered, That at a District Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 20th day of October, Anno Domini, One Thousand Nine Hundred and Thirteen, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on December 30th, 1913:

No. 1638.

SIDNEY E. BOYLE, etc.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Come the parties hereto by their respective solicitors, and on motion of the plaintiff, it is ordered by the Court that said plaintiff have until March 31st, 1914, in which to begin the taking of his testimony.

88 UNITED STATES OF AMERICA,
*Eastern District of Arkansas,*
*Western Division:*

Be it Remembered, That at a District Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 6th day of April, Anno Domini, One Thousand, Nine Hundred and Fourteen, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on May 23rd, 1914:

No. 1638.

SIDNEY E. BOYLE, etc.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the plaintiff and on motion it is ordered that the time within which he is to begin the taking of testimony herein be and the same is hereby extended until June 15th, 1914.

(Signed) JACOB TRIEBER, *Judge.*

89 UNITED STATES OF AMERICA,
*Eastern District of Arkansas,*
*Western Division:*

Be it Remembered, That at a District Court of the United States of America, in and for the Western Division of the Eastern District

of Arkansas, begun and holden on Monday, the 19th day of October, Anno Domini, One Thousand, Nine Hundred and Fourteen, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on November 27th, 1914:

No. 1638.

SIDNEY E. BOYLE, etc.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the plaintiff by Moore, Smith & Moore, Esqs., his solicitors, and by leave of the Court first had and obtained files herein his supplemental bill.

Which Supplemental Bill is as follows:

In the United States District Court for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, &c., Complainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, WILLIAM F. McKNIGHT, J. Sam Rowland, and C. T. Breckinridge, Railroad Commissioners of the State of Arkansas, Defendants.

*Supplemental Bill.*

Plaintiff by leave of the Court first had and obtained files
90 herewith *its* supplemental bill of complaint in said cause, and thereupon alleges in addition to the allegations contained in said original bill that the St. Louis and San Francisco Railroad Company has continuously operated the said railroad and the branches thereof, set out and described in said original bill, since the date of the institution of said proceedings. That there has been no material change in the mileage of said main line or branch lines.

Plaintiff alleges that during the entire period of time from the institution of said original proceedings to this time the rates and fares provided in the schedules adopted and promulgated by the said Railroad Commission as Standard Freight Distance Tariff No. 3, and by the provisions of the statute regulating the charges for the carriage of passengers passed by the General Assembly of the State of Arkansas in the year 1907, which is set out in the said original bill, have not, and do not now, allow said railroad company any reasonable return on the investment in the property used in operating said railroad in the State of Arkansas.

That taking the gross receipts of all of the state business of whatsoever kind said railroad has done during said time, or that it can or will do in said state, and deducting from the total receipts the

cost of doing said business in said State, there has not been, and will not be, sufficient to pay operating expenses and taxes, and leave any sum as profit, or as a return upon the value of the railroad and property of said Railroad Company, devoted to the use of such
91 business in said State. That the rates and fares fixed by said Commission under the statute of the State of Arkansas, passed in the year 1907, as set out in said original bill, for the classes of freight embraced in said schedules, and for the carriage of passengers, have not been during said time sufficient to pay the cost of carrying and transporting the same, and paying taxes, and leave any reasonable return, and many of said years any return whatever on the value of the property devoted to said service, notwithstanding said Railroad Company has exercised all economy in the use and operation of said property that was compatible with the interest of the public and safe and efficient service. And plaintiff thereupon alleges that said rates of transportation, both freight and passenger, were and are confiscatory and deprive said Railroad Company of its property without due process of law, and is a denial of equal protection of the laws contrary to the provisions of the Constitution of the United States and Amendments thereto.

Plaintiff here refers to and adopts all the material allegations contained in the said original bill in the same manner as if they were expressly repeated herein, and asks that the same be taken and considered as a part of this its supplemental bill.

Wherefore plaintiff prays, as is prayed in said original bill of complaint and that all the relief therein sought, generally and specifically, be extended to and granted it as to all the matters and things herein set forth to the same extent as if said prayer had been renewed and repeated in this supplemental bill, and for such other and further relief as plaintiff may be entitled to.

(Signed) MOORE, SMITH & MOORE,
JOHN M. MOORE,
*Attorneys for Plaintiff.*

92 Endorsed: Filed November 27th, 1914. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

And on February 9th, 1915, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, etc.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Comes the Railroad Commission of Arkansas, by Joseph M. Hill, Esq., its solicitor and files herein its answer to the Supplemental Bill. Which Answer to Supplemental Bill is as follows:

In the United States District Court for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, etc., Complainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al., Defendants.

Come J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners of Arkansas, and for answer to the Supplemental Bill herein say:

That it is not true that during the entire period of time since the institution of this action that the rates prescribed in the schedules adopted by the Railroad Commission and the passenger rates
93 prescribed by the General Assembly have not allowed the Railroad Company a reasonable return on its investment of its property used in operating said railroad in the State of Arkansas.

That it is not true that the net receipts of the railroad have not been sufficient to pay operating expenses and taxes and leave any sum as profit or return on the value of the property devoted to the use of the intrastate business; but on the contrary, these defendants allege that the rates prescribed have enabled the defendant Railroad Company to pay its operating expenses and to earn a compensatory return on its property.

That it is not true that the defendant Railroad has exercised all such economy in the use and operation of its property as was compatible with the interest of the public and efficient service.

That it has paid large interest charges and undue expenses; that it is not true that the rates fixed for the transportation of both freight and passengers were or are confiscatory.

These defendants further allege that the evidence upon which the plaintiff procured its preliminary injunction herein was insufficient to entitle it to have it granted; that its statement of expenses was erroneously made out and included interest charges and in some instances upon property not in Arkansas and rent of leased lines and included some expenses in Missouri, Kansas and Oklahoma, and the separation of state and interstate property and expenses was made upon the revenue theory which is unsound and which does not reflect the true condition of affairs.

The defendants pray that the original answer of their predecessors so far as applicable be taken as the answer herein and that
94 this answer be taken in addition thereto, to the supplemental bill.

(Signed) JOS. M. HILL,
*Solicitor for Railroad Commission.*

Endorsed: Filed Feb'y 9th, 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

95 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

Be it remembered that at a District Court of the United States of America, in and for the Western Division of the Eastern District of Arkansas, begun and holden on Monday, the 5th day of April, Anno Domini, One Thousand, Nine Hundred and Fifteen, at the United States Court Room, in the City of Little Rock, Arkansas, the Honorable Jacob Trieber, Judge presiding and holding said Court, the following proceedings were had, to-wit: on April 10th, 1915:

No. 1638.

SIDNEY E. BOYLE, as Executrix of the Estate of Wilbur F. Boyle, Deceased,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY; J. SAM ROWland, William F. McKnight, and Thomas E. Wood, Railroad Commissioners of the State of Arkansas; W. W. Dickinson, and T. H. Bunch.

Now on this day comes the plaintiff by his solicitors, Moore, Smith and Moore, Esqs., and the defendants St. Louis and San Francisco Railroad Company, by W. F. Evans, Esq., its solicitor, and the remaining defendants by their solicitor, Joseph M. Hill, Esq., and thereupon said cause having been argued and submitted on the pleadings, evidence, exhibits and stipulations on file in the record in this cause, and the Court being well and sufficiently advised in the premises,—

It is accordingly ordered and decreed that the defendants, William F. Knight, J. Sam Rowland and Thomas E. Wood, as Railroad Commissioners of the State of Arkansas, and W. W. Dickin-
96 son and T. H. Bunch, and each of them, their agents, employees, successors, as well as all other persons patrons of the defendant, St. Louis and San Francisco Railroad Company, either in the shipment of freight or as passengers between stations on the railroad of the St. Louis and San Francisco Railroad Company in the State of Arkansas, are hereby perpetually enjoined from enforcing or attempting, directly or indirectly, by any suit or in any manner whatsoever, to enforce against the St. Louis and San Francisco Railroad Company, its officers, agents, employees or servants Standard Distance Tariff No. 3, and amendments thereto adopted prior to the institution of this action prescribing the rate or rates for the transportation of classes and commodities, or from enforcing oa attempting, directly or indirectly, by suit or in any other manner whatsoever, to enforce against the said St. Louis and San Francisco Railroad Company, its officers, agents or servants, any of the provisions of an Act of the General Assembly of the State of Arkansas, entitled "An Act to Amend Section 6611 of Kirby's Digest of the Statutes of Arkansas, by fixing Passenger Rates in this State, and for other Purposes", approved February 9th, 1907, or to enforce the

provisions of any other Act or Acts of the Legislature of the State providing penalties for non-compliance by said St. Louis and San Francisco Railroad Company with the provisions and requirements of Standard Freight Distance Tariff No. 3, and amendments thereto as aforesaid, and the aforesaid Act of the Legislature of the State of Arkansas fixing passenger rates in said State.

It is further ordered that the matter of costs incurred by it in —
about said proceeding be left open for further hearing and
97 determination.

And the Court hereby reserves and retains unto itself jurisdiction of the subject matter of this suit, and of all parries thereto, to the end that such other and further orders and decrees may be made herein as may become necessary by reason of any changed condition as to the facts, equities, rights of either party that may hereafter arise or take place.

(Signed) JACOB TRIEBER, *Judge.*

At the final hearing of said cause the following testimony was adduced on behalf of the parties:

98 LITTLE ROCK, ARKANSAS, June 15, 1914.

Court convened at ten o'clock in the forenoon on Monday, June 15, 1914, and the following proceedings were had:

T. A. HAMILTON, a witness of lawful age, being duly produced, sworn and examined, testified on behalf of the complainant, as follows:

Direct examination.

By Mr. John M. Moore:

Q. Will you state if you are connected with the complainant in this case, and if so, in what way?

A. Yes, sir. My present employment is in the capacity of an assistant to the Receiver and Chief Operating Officer of the St. Louis & San Francisco Railway Company—Mr. W. C. Nixon; my official title is Supervisor of Efficiency.

Q. Have you had any connection with the preparation of the exhibits and data to be used in the trial of this case?

A. Yes, sir.

Q. In what way?

A. The gathering of the data, and preparation of the exhibits, has all been under my direct personal supervision.

Q. I wish you would state what experience you have had which would qualify you to do that work?

A. You mean my entire business career?

Q. Yes. State your qualifications.

A. In 1889, when I was about fourteen years old, I obtained my first employment as messenger boy in the office of the District Passenger Agent of the Canadian Pacific Railroad Company at
99 Toronto, Canada. I remained in that position for about a year. In the fall of 1890, I went to Detroit and took service

with the Chicago and Grand Trunk Railroad as junior clerk in the office of the Assistant General Manager. I remained there until early in May of the following year. I then came down to St. Louis, and took a position in the General Auditor's office of the Missouri Pacific-Iron Mountain System. I was employed there in sundry detail work in the Freight Accounting Department, in the handling of way-bills, preparation of records for the verification of agents' accounts, and all manner of detail looking toward the collection of the Company's freight revenues.

In the spring of 1892, I left that employment and went to Houston, Texas, entering the service of the Southern Pacific Railroad as assistant to the Car Accountant in the local freight office at that point. My duties in that connection being the recording of car movements into and out of and through the large terminal there. I remained there three or four months; then returned to St. Louis and resumed service with the Missouri Pacific Railroad. That was along in the summer of 1892. From that time until July, 1910, I was employed continuously by the Missouri Pacific in its General Auditor's office as "general handy-man" for the auditor of freight receipts, filling in positions of men who were temporarily incapacitated, and engaged on special missions of one kind and another.

My complete service there covered practically every phase
100 of railroad freight accounting work from the revenue standpoint.

In July, 1900, I left the service of the Missouri Pacific Railroad and took service with the Illinois Central Railroad, at East St. Louis, as way-bill clerk. My duties in that connection were the preparation of way-bills, credentials for the transportation of freight over the line of that railroad. It involved the classification of freight and the application of rates prescribed in the Company's tariffs, and all the work which entered into the making of way-bills, which is the Company's basic freight accounting instrument.

In June or July, 1901, I left the service of the Illinois Central Railroad and took service with the Louisville & Nashville Railroad, also at East St. Louis, in a similar capacity—that of bill clerk. After about three months I was appointed chief outbound clerk at that station, responsible for the entire outbound movement of freight over the platform and through the yard; and also had charge of the way-bill desk, at which all way-bills for outbound freight were made. My duties in that connection had to do with the loading of less-than-carload freight, and in that I consulted with the platform foreman, who reported to me as to the cars he could load, for what points, and so on; also with the general yardmaster as to preference movement of certain freight, and matters of that character.

In the spring of 1905, I was promoted to the position of chief
clerk of the General Agent of the Traffic Department of the
101 Louisville & Nashville Railroad, at St. Louis. My duties in that position were meeting the people, handling the business of the office in contact with the public, practically all the correspondence of the office, the supervision of the force—consisting of some bill-of-lading clerks, rate quotation clerks, and claim clerks;

the investigation of freight loss and damage and over-charge claims. In those days the Louisville & Nashville Traffic Department settled its own claims. The attending of some rate conferences, and the general looking after the Company's interests in the General Agent's office at St. Louis.

In June, 1906, I left the employment of the Louisville & Nashville Railroad and took service with Haskins & Sells Certified Public Accountants, with offices in New York and several other cities in this country and abroad; and was engaged for two and one-half to three years under the direction of members of that firm and their subordinate associates, in the preparation of data and submission to the Court in what has been termed "The Missouri Rate Cases." Subsequent to the conclusion of those cases, and somewhat during their preparation and trial, I was engaged in general accounting practice, as a member of the staff of Haskins & Sells. When that firm of accountants was retained by the State to prepare for trial the state's case in the injunction suits——

Q. The State of Arkansas, you mean?

A. Yes, sir—of the Iron Mountain & Cotton Belt Roads in the State of Arkansas, I was engaged in that work, under the
102 direction of Mr. Wharton, in carrying out practically all the detail preparation, gathering of data, preparation of exhibits, and their submission in this Court.

In January, 1912, I left the staff of Haskins & Sells and took service with Mr. Nixon of the St. Louis & San Francisco Railroad, in my present employment.

During the two and one-half years I have been with him I have been privileged to be his personal representative engaged on special missions, particularly in the investigation of operating conditions on the St. Louis & San Francisco parent system (not including the Chicago & Eastern Illinois—the Chicago-St. Louis line) and on the Gulf Coast lines extending from New Orleans to Brownsville, now operated as separate propositions under separate receivership.

My duty was the studying of operating results at first hand directly with everybody on the railroad, and with everybody I cared to consult on such matters, from the section foreman on the ground to the general manager. The object of this work was the studying of operating conditions and, so far as I could, to suggest betterment thereof and present information to the management as to the progress and the conduct of the Company's business in general.

Last July—that is, July, 1913,—I was called in by our Law Department's general solicitor, Judge Evans, and was requested to represent the Law Department of the Company in a conference that had been called to consider the decisions handed down by the Supreme Court of the United States in the Minnesota Rate Cases. We
103 had this rate injunction suit pending in Arkansas and a case somewhat similar in nature pending in Oklahoma. All of the bases formerly employed by the railroads in the division of expense between state and interstate traffic, in former rate suits, had been tabooed by the Supreme Court—as we understood. It, therefore, became necessary for us, in compliance with the expressed

wish of that Court, to revise our methods and make another effort to get at the facts.

Q. In that connection I want to ask you, Mr. Hamilton, if you took part in the preparation and the working out of the scheme of apportionment presented by the State's accountants in the Missouri Pacific, St. Louis Iron Mountain & Southern and St. Louis Southwestern Railroad Cases?

A. Yes, sir. The plan was devised largely by Mr. Wharton, the St. Louis manager at that time for Haskins & Sells.

Q. You participated in the working out of that plan and the presentation of the plan itself to the Court?

A. Mr. Wharton and I conferred at times as to ways and means, and as to bases, and the working up of the detail from which Mr. Wharton built his exhibits was entrusted practically entirely to me.

Q. So you are entirely familiar with details of that kind?

A. I think I may so state, yes, sir.

Q. You may go on with your statement as to the steps taken to carry out the decision of the Supreme Court in the Minnesota Case, as handed down.

104 A. With the view of following the expressed opinion of the Court that expenses which are common to various classes of traffic on a given railroad should be divided on the use unit basis —that is, as we interpreted the decision—that is to say, that the use made of the property by each class of traffic should determine the apportionment of expenses, and subsequently the value of the property on which the carrier expected to earn a return on each class. We took that as our text. A conference was called, consisting of——

The Court: Speak a little louder, if you please, Mr. Hamilton. Out of fifteen or more Circuit Judges none of them agreed as to what the Court said, and if you have it I shall be interested to hear it.

A. We did not understand the Court to tell us how to do it, but they told us what they wanted, and we undertook to do it. Counsel interpreted it for us to mean that expenses, which, as your Honor knows, are common in a large measure to many classes of traffic on a railroad, should be divided between those classes of traffic on the basis of the relative use which each class made of the property.

The Court: What do you mean by "each class"?

A. Freight and passenger, interstate and intrastate, mail, express and miscellaneous.

The Court: What do you mean by "the use that each class makes of the property"? Does that mean ton mileage, train mileage, or revenue—or what do you mean by "use" of the property?

A. We have not considered the "revenue basis" in any way, shape or form.

105 Q. What do you mean by "use" of it?

A. It runs through so many channels, and the uses of it are so widespread and so numerous, that it is almost impossible to state it in a nutshell.

Mr. Moore:

Q. What the Court asks is, do you mean the use as affected by the revenue or by the ton mile or train mile?

A. The use as reflected by the various physical facts, train mile, ton mile, engine mile, car mile, tons, passengers—it is almost impractical to discuss in detail without going into the whole scheme. The point I have in mind is that the "revenue basis" has not entered into it in any way, shape or form.

The Court: The Court has expressly stated what should not be considered, but it has not intimated what should be considered. So if you have that it is the first reason I have heard as to that.

A. We have not used the train mile alone in dividing between freight and passenger, as has been done heretofore, but we have divided some expenses which related to train mileage by train miles; and we have divided some expenses which related to engines by engine mileage.

Mr. Moore: If you will indulge me, your Honor, I wish to lay a foundation for these matters. I propose to develop right along in sequence the bases on which these various divisions have been made.

106 Your Honor will find the scheme of division is based largely upon actual tests and actual physical conditions, and not upon assumptions, such as have been used heretofore. You will understand it better if Mr. Hamilton is permitted to take it up in chronological order.

The Court: Go ahead.

A. As a means to the end of making these divisions, a conference was called and representatives of the railroads having suits pending in Arkansas and Oklahoma, the Rock Island, the Santa Fe——

Mr. Moore: Never mind going into the detail of naming the roads.

A. The first conference of this Committee was had early in July of last year, within a few days after we came into possession of the decision of the Supreme Court in the Minnesota Case. Conferences were held extending to the middle of October last, and as a result of those conferences, which were held practically every week and for the major portion of each week, a formula, which in the opinion of the Conference Committee complied with the expressed wish of the Supreme Court, was devised.

Q. Mr. Hamilton, I see on the inside of the first page of an exhibit which will be filed in this case as Exhibit No. 1, a statement of the personnel of that Committee: Are those practical operating and accounting officials of the railroads which are set out there?

A. Yes, sir.

107 Q. Were any further conferences had with other operating and accounting officials of other roads, as to this scheme of division?

A. The exhibit shows the names of all who participated at those conferences, either directly as members of the Committee, or in an advisory way as counsel of the committee.

Mr. Moore: I ask leave to file as Exhibit No. 1 in this case the formula which was prepared by that Committee.

Mr. Hill: I wish to note an objection to the filing of this formula.

The Court: You understand that under the practice governing courts of chancery in courts of the United States, all evidence whether it is objected to or whether it is admissible or not—unless it is so clearly inadmissible that there is no room for question, must be admitted to the record. They do not want to send the case back if it should not have been excluded; therefore, it will go in subject to the objection.

Mr. Hill: In brief, my objection is this—as I presented it at some length last winter to your Honor: The bill in this case is framed upon the revenue theory; the original exhibits were framed upon the revenue theory; the temporary injunction was based upon the revenue theory. There is no amendment of the bill, no change of the bill from its original form until the present time, and I think it is incompetent to take up a formula prepared five years after the injunction was granted.

The Court: The rules of equity, which are to a great extent
108 the same as the practice under the laws of the State of Arkansas, hold that a bill may be amended at any time, even after submission of the case; and if counsel sees fit to amend the bill in order to conform to the proofs he wishes to offer—unless it would cause some surprise to the other party and afford cause for a continuance, they are at liberty to so amend.

The exhibit will be admitted subject to the objection.

Mr. Moore:

Q. Mr. Hamilton, take up that exhibit No. 1, or such portion of it as may be necessary without going into too much detail and explain the general scheme of the exhibit——

Mr. Hill: There is another thought I presented to your Honor before which I have failed to mention here: It is not the mere right to amend, technically, but it is the subject-matter which I do not think is the subject of amendment. I am not objecting to their not introducing a new bill, but the change from one to another is not the proper subject of an amended bill.

The Court: The bill, generally, charges that the rates were confiscatory and they state reasons why that is so. The main contention of the bill, upon which the prayer for relief is based, is that the rates are confiscatory.

Mr. Hill: They show that, it is true, by dividing the expenses upon the revenue basis. That is shown in the bill and in
109 the exhibits made a part of the bill.

The Court: You do not believe that evidence which is introduced at a preliminary hearing on the temporary injunction concludes the parties in any way.

Mr. Hill: It would not be necessarily conclusive.

The Court: Proceed: I do not remember the exact verbiage of the bill, but the principal object of the bill was to enjoin because the

rates were confiscatory, and the theory they adopt, whether adopted correctly or not on the first application—it is only a theory; but the question is does the proof upon the final showing establish that fact or not?

Mr. Moore: I have not read the bill in a long time, but my impression is that the original bill does not disclose upon what theory they declare that the rates prescribed by the Commission are confiscatory. I am going to make an examination of the bill on account of the statement made by Judge Hill, and if I find any conflict I will ask leave to amend.

The Court: You may amend at any time you choose. The practice in United States courts is as liberal as that under our state code.

Mr. Moore: Mr. Hamilton, explain in a general way the nature of Exhibit No. 1.

A. In preparing this formula which has been offered as Exhibit No. 1, I would like to say that the Committee whose names appear on the fly lea*d* thereof, approached the subject in this attitude——

110 Mr. Hill: That is objected to.

The Court: We do not want to go into that.

Mr. Hamilton: What I wanted to say—perhaps I put it in the wrong way——

The Court: It does not matter why you adopted the rules you have adopted; the only question is, upon what do you base your claim here that the rates are confiscatory? State the facts, no matter what induced you to pursue the plan you did.

Mr. Moore: I take it, Mr. Hamilton, that the Committee in preparing this formula was attempting to evolve a scheme by which the expense of operation could be apportioned upon the use made of the property in relation to the different services and traffic?

A. Yes, sir.

Mr. Hill: That is objected to.

The Court: That is all that is necessary. Of course, he may state what the exhibits he intends to produce, and the calculations, show, and how they were made. I believe he has stated they were made in conformity with the rules established in Exhibit 1.

A. What I had in mind, your Honor, if it is not improper to state it, is that in explaining the theory of these exhibits I wanted to make a preliminary statement to the effect——

Mr. Hill: That is just what we object to.

The Court: It is simply what you did.

Mr. Moore: Allow him to make the statement and it may be excluded if it be found that it is not proper.

111 A. The theory the Committee had in mind is that the factors shown in this exhibit represent in so far as their judgment could determine it, in each instance the use made of the property, and the use of the property which caused the incurring of each different item of expense. That was the keynote of the preparation of the formula.

The Court: That is what the Supreme Court suggested?

A. On page 2 of the exhibit there are some explanatory notes. The plan as outlined, beginning on the subsequent page, page 3, indicated that it had in mind first, the assignment to the state of Arkansas, if you like in this instance, of the expense properly chargeable to that state as being incurred in that state on account of the traffic, or the operation of the railroad in that state. Second, a separation of those expenses between——

The Court: Is it necessary to repeat? That is all in evidence now. This Exhibit shows it.

Mr. Moore: It is necessary, your Honor.

The Court: Unless you don't want the exhibit in the record afterwards, it is not necessary. That is all covered now by this exhibit. This is simply repeating it.

Mr. Moore: It is an explanation, perhaps a necessary premise of the statements I am going to call upon Mr. Hamilton to make.

The Court: He says this was adopted, after it was agreed
112 upon, and he prepared these formulas upon the theories there adopted, and it is now in evidence. It is not necessary to read it over again.

Mr. Moore: I think it is better for the Court and for any reviewing court to have at least a short statement in the record as to the exhibit.

The Court: It is in the record.

Mr. Moore: This exhibit is a part of the record, I understand, but judging from my observation courts get their impressions from reading the text part of the evidence rather than from the exhibits. That usually comes in narrative form, and I wish to make sufficient explanation to direct the attention of the Court to these exhibits so the Court may look to them for the purpose of determining what parts of the case and what parts of the record will be found in these exhibits. I think I should be permitted to do that.

The Court: When he introduces these exhibits they may be referred to. Take Exhibit No. 1, give the scope and plan of Exhibit No. 1; he may refer to it.

Mr. Moore: I judge the Court by myself, which is the only way one man can judge another. When I come to make an examination of a record the first thing I want to know, outside and independent of the exhibits, is to get an idea of the scheme.

The Court: As he introduces each exhibit he may refer to it.

Mr. Moore: It is a very important part of the case.

113 The Court: It is part of the record now.

Mr. Moore: This exhibit develops the primary divisions that are made between the different classes of service reaching the result you are trying to accomplish, does it?

A. Yes, sir.

Q. Those primary divisions are stated here on page 3, aren't they?

A. The basis is stated on pages 3 and 4 in outline.

Q. Just state, without going into any detail about it; I want to get

into the record what the fundamental and primary divisions are, the foundation of this scheme of division.

Mr. Hill: That is objected to, as this scheme is itself the best evidence of it.

The Court: If this exhibit had not been introduced, he could state it; but he covers it fully by stating he followed the scope of the plan as laid down in the exhibit, on pages 3 and 4.

Mr. Moore: If the Court please, without being insistent as to this matter, I think some explanation should be made by Mr. Hamilton. It would facilitate matters.

The Court: I thought we would same time, but go ahead.

A. The plan that was followed in the preparation of the state's presentation in the Iron Mountain Case, for example, in this state, affords it seems to me a background of comparison, which perhaps would elucidate some of the new things which have been done in this particular case. The reason for making that statement is that there is some more or less arbitrary terminology used in this formula—words used as descriptive terms, that are not used as
114 commonly understood. For instance, the words "terminal" and "yard" and the word "line," in item two, under the scope of plan on page 3; that division between line and terminal expense becomes largely the basis of the entire plan. Terminal expense, in the ordinary acceptance of the term, conveys to most people and to most railroad men for that matter, the end of the trains' run; in this formula it does not mean any such thing, except perhaps by accident. By "terminal expense" is meant the expense of originating and delivering freight; that is, receiving it from the shipper and delivering it to the consignee, and all of the collateral expenses that go with that. Perhaps they might better have been called "non-haulage" expense, and "line" expense. That is the explanation I wanted to make.

Q. In the former cases, the prime factor of division was local and through trains; that is not one of the primary divisions involved in this scheme, is it?

A. No, sir. It becomes a secondary division, following the segregation of expense between the terminal and the line expenses.

Q. Let me ask you to what extent, if any, the division of expenses on the basis of assignment of line and terminal expenses separately superseded the necessity of making a division on the basis of local and through trains.

A. It did not, Mr. Moore, if you please.

Q. I mean using that as a primary factor of division?

A. That is a hard question to answer. It did not supersede it. The division between local and through trains under this plan——
115 Q. I think you did not hear the qualification of my question. I said, as one of the primary divisions.

A. This plan starts with the assignment of expenses to the state. Then their division between line and terminal service, and their division subsequently between freight and passenger service. When

you get down to that point and begin to divide your freight expense, then your local and through division begins.

Q Go on now. Is there any other explanation you wish to make?

A. This formula which has been filed as Exhibit 1, it will be noted, has certain interleaved annotations which are dominated "Formula of the St. Louis & San Francisco Railroad." There were some local conditions on the Frisco, minor in their nature, which made it necessary to slightly vary the application of the bases laid down in this formula, but without variance in the principles which the formula laid down. That is what those interleaved annotations are to indicate.

Q. Mr. Hamilton, will you state now what steps were taken by the railroads for the purpose of preparing the data which was necessary to be used in the preparation and under the application of this formula?

A. It was necessary in complying with the provisions of the formula to gather certain data as the basis of factors in making the division of expenses, and the expense of the value of the property. The data for some of these factors was already contained in the company's regular records kept in the ordinary conduct of its business. Other data, and by far the larger portion of it, could only be secured concurrently along with the operation of the railroad. In
116 order to do that it was necessary to conduct investigations and tests over such period as was at our disposal, and to ascertain those necessary facts by making these special investigations. What those investigations were have been set forth——

Q. Any explanation you wish to make of it, please make now, as I will not introduce the exhibit until later.

A. It was necessary first to ascertain what character of freight and in what quantities each local freight train and mixed train and through freight train carried within the state of Arkansas. That could not be done thoroughly by going back to the company's regular records. It had necessarily to be done as a matter of special investigation. In order to do that we placed clerks upon all of the local freight trains and mixed trains running in Arkansas during the entire two months November and December, 1913. We placed special yard clerks, employed for that purpose, at the termini of all through freight runs, whose duty it was to see that all of the consist—or contents, rather—of the train as it left the terminal were recorded. We imposed upon the conductors in charge of through freight trains the duty of recording facts as to the character and quantity of freight, distance hauled, and other necessary data, covering all of the freight which they both picked up and set out of the train between the termini of their run. The yard clerk at the arriving terminal of that train was required to fill in on the report handed to him by the conductor, and which the conductor in the first instance had received from the clerk at the departing terminal, all of the data which the conductor had not filled in, or which the yard clerk at the originating terminal had not filled in. The yard clerk at the arriving
117 terminal was made responsible for that phase of the work, and was compelled to check this report against the conductor's

wheel report, to see he had covered all of the cars in the train. That expla-ns the thoroughness with which that train test was made, and typifies the minut-ae with which we went into all the other phases of the preparation of these exhibits.

Q. What time was consumed in that test?

A. The months of November and December, 1913.

Q. Does that test, or does that period, reflect correctly a year's business and the results obtained?

A. We think so from the investigations and comparisons we have made.

Mr. Hill: I don't think that is competent.

The Court: Why?

Mr. Hill: He says the investigations and comparisons through this test of two months is a test of a year's business.

The Court: He says it is based on a year's business.

Mr. Hill: I did not so understand him.

Mr. Moore: Explain it, Mr. Hamilton, so Judge Hill may understand the purpose.

A. We made this special test covering the months of November and December, 1913, covering every phase of the operations of the railroad in minute detail. We considered, and that was the statement made before, from some collateral investigations we had made, and some figures we have compiled, that those two months are reflective of the entire year.

Mr. Hill: That is the way I understand it.

Mr. Moore: For what purpose were those tests made? The purpose of obtaining the relation of one class of business to an-
118 other so as to get the relation to a year's business.

Mr. Hill: In a former case they put in one month as a test of six months. They testified very positively it did represent it. We took proofs of months vouched for by Mr. Kimbell and a number of others as representative of the period. Your Honor, upon evidence before you, did not think they were; and the Supreme Court has indicated in their opinion that a test period of one or two months was insufficient.

The Court: I did not so understand the statement of the Supreme Court. I think the Supreme Court practically held the same way that I did, that certain months which are representative periods of the entire year might be used.

Mr. Hill: I don't see why the months of November and December should be used as representative of the year. We had October as representative of six months; and they have two months as representative of twelve—the difference between tweedledum and tweedledee, I take it.

The Court: This Court suggested it might be fair to take test months, one in the spring and one in the fall.

Mr. Hill: I think the Court required two in the spring, two in the fall, if I remember aright.

The Court: It is a question of what weight shall be given to the evidence.

Mr. Hill: There is another point here to be taken up later on. They take a test of November and December, 1913, and by a kind of nunc pro tunc proceeding carry that to 1907, when the original suit was filed.

The Court: That is also a question to be determined, as to what weight shall be given to it.

119 Mr. Hill: I want to get my objection clear on it. They are beginning first to put in these test period- so-called, taking a period five years after the period under inquiry. That in itself is insufficient, I take it. And to use that as a basis for subsequent years, and then take by nunc pro tunc proceeding, which is the closet thing I can think of as an explanation of what they do, those figures for 1907, and get out new figures based on those months in 1913——

The Court: They may be able to show that the facts obtained for 1913 conditions were the same and would apply to 1907 and 1906. Those are all questions which simply relate to what weight shall be given to the evidence.

Mr. Hill: In view of the decision in these other cases I think it would go further than that.

The Court: Regardless of what the truth was, regardless of what theory was adopted, if it appeared as a whole that the rates were confiscatory—that was the finding in the Minneapolis and St. Louis Cases, and the Court held that in the Missouri and North Arkansas Case.

Mr. Moore: I would like to suggest that there is no similarity or analogy between the tests introduced now and those introduced in the former case. Those tests are wholly different, as different as any two tests can possibly be. These tests relate to matters and conditions unvarying in their nature and character, and there cannot be any comparison between them. I do not say this for argument, but for the Court's information at this time. We had tests introduced under the revenue theory in the former case.

The Court: The court in the former case adopted a great deal of testimony based on tests made in October of that year. One

120 thing the Court rejected was the showing of how much interstate freight was carried on local trains, because there was evidence which established to the satisfaction of the Court beyond any reasonable doubt, you might say, that owing to the congested condition of the freight on all the railroads at that time that every kind of train was used for the purpose of moving freight. But so far as the actual cost of a certain train—the coal, oil and expense of running, that was practically adopted by the Court. I do not know what they are going to attempt to prove by the tests made for November and December, 1913. But we are wasting more time on objections and arguments than we do on the testimony, and all of it will have to go in anyway, subject to the objection. It is sufficient to state the objection, and the reason, so the appellate court will understand it.

Mr. Moore: At this point I wish to make a suggestion and request of the Court. We have a number of exhibits here, some twenty-seven or twenty-eight, which really contain our case. In order that

there may be a clear understanding of them, it will be necessary for any Court in determining the questions involved, to have a clear understanding of the relation which exists between these exhibits and the conditions reflected by them. So if Mr. Hamilton may be permitted to take them up and connect one exhibit with another in a logical way, so as to enable the Court to understand this scheme in its entirety, rather than pick it out from the different exhibits, it will facilitate matters. I wish Mr. Hamilton to take up the exhibits in orderly sequence and explain them.

The Court: There is no reason why it should not be done, and counsel may enter into the stipulation that it is agreed that
121 that objections may be taken at any time to any testimony, without making the objection specifically at the particular time.

Mr. Hill: I am perfectly willing to do that, but I would prefer to point out to the Court my objections as we go along.

The Court: Suppose you enter into the stipulation that each party reserves the right to make objection to the testimony at any time, and then, of course, the Court will hear you on your objections.

Mr. Hill: It saves labor if Mr. Moore is willing.

Mr. Moore: I am perfectly willing to do that. If it is any matter of form or any matter that may be remedied we may refer it to the Court. I think we can get up a stipulation like that.

Mr. Moore: Please proceed, Mr. Hamilton.

A. I was describing the method of gathering the data for factors representing quantity and quality of traffic carried on local trains, mixed trains and through freight trains. That is all set forth in considerable detail in Exhibit two.

Mr. Moore: I will now offer in evidence the paper marked "Complainant's Exhibit 2."

A. (Continued:) I want to say that the various other matters that are covered in that exhibit, reflecting the gathering of data covering passenger train performance, analysis of passenger train travel, analysis of train stops and terminal delays, time devoted by yard engines to the various classes of service, the time of station yard and station agents' work, and the time of station employes devoted
122 to the various classes of service—all other matters discussed in that exhibit were worked up in the same detail, at first hand, and right on the ground where the operation occurred, in each instance.

In order to carry that out——

Mr. Moore: One moment before you come to that. Were the tests that are referred to in Exhibit 2 made under your direction and supervision?

A. Yes, sir. The exhibit states the organization that carried that out in detail.

Q. You file that Exhibit 2 as part of your evidence in this case, and state that the facts stated therein are the result of work done under your superintendence, and are correct?

A. Yes, sir.

Q. Go ahead, Mr. Hamilton.

A. In carrying out the work outlined in Exhibit 2, certain forms and certain circulars of instructions were necessary. They are referred to in Exhibit 2, and for the information of Court and counsel copies of each of them are here offered as Exhibits 2-A to 2-K inclusive.

It was necessary to make some special analyses of the Company's records to secure certain data in complying with the provisions of the formula, in addition to the special outdoor investigations and tests that have been described in the exhibits last filed, and Exhibit No. 2.

The method of making these analyses is described briefly in this exhibit.

Mr. Moore:

Q. That is Exhibit No. 3?

A. Yes, sir.

123 Mr. Moore:

Q. One moment before you leave that: That exhibit, Mr. Hamilton, relates to the record that was taken from the regular records kept by the Company, I believe, does it not?

A. Yes, sir.

Q. And the data gathered up in that way?

A. Yes, sir.

Q. Complying with these propositions referred to?

A. Yes, sir.

Q. Is there any explanation you wish to make?

A. No, sir. In Exhibit No. 4, which I offer, is described in detail the method of apportioning revenues to the State of Arkansas. The apportionment of intrastate revenue is practically an automatic proposition. The apportionment of interstate revenue and the basis of that apportionment is detailed in the formula, but I think it would be well to explain somewhat in detail what has been done, or the reason for it, rather. There has always been some discussion, in other state rate suits, as to whether or not some allowance should not be made in some way to compensate for the maintenance of large terminals which, by geographical accident, are entirely within the borders of one state: For instance, the Frisco has an immense terminal at St. Louis. It has other large terminals at Kansas City, Memphis, Birmingham, Oklahoma City and Fort Smith—not so large, but still a large terminal. It was felt that the expense incident to originating traffic at these large terminals outside of the State of Arkansas, and which moved through Arkansas in

124 transit, should in some way be compensated for. The expense is localized to the State where the terminal is located, it is incurred there and so localizes itself. This plan contemplates making an allowance of revenue to the state in which the terminal is located to compensate for that terminal cost. It required somewhat voluminous explanation in this exhibit. Briefly, the plan is this: Under the provisions of the formula and through the various steps,

the cost per ton of terminal service within the State of Arkansas was determined—the cost per passenger for terminal service was determined; the haulage cost of a ton of freight one mile was determined, and the haulage cost, or line cost, if you will, of a passenger one mile was determined. It was found that the cost of handling a ton in terminal service in Arkansas was a certain number of times the cost of hauling a ton one mile. In the months of November and December, 1913, the detail set up in these and subsequent exhibits, shows that it cost 36¢, in round figures, 36½¢ per ton for terminal service in Arkansas, and that it cost for haulage service alone 4.6 mills, or a little less than ½ cent. So that the cost of handling a ton in a terminal was, in round figures, equivalent to the cost of hauling a ton over the road 78 miles. On that hypothesis and that basis, determined as stated, 78 miles was added to the road mileage of Arkansas and 78 miles to the road mileage of the other interested state, on each shipment moving between Arkansas and the outside world; that is to say, a shipment originating at
125 a Missouri point and moving, say 50 miles in Missouri, then crossing into Arkansas and moving 100 miles in Arkansas (necessarily an interstate shipment), in that event the earnings of that shipment were assigned as between Arkansas and Missouri on a basis of percents which were arrived at in this way: 78 miles—the haulage equivalent of terminal costs—was added to the 100 miles in Arkansas. The same 78 miles was added to the 50 miles in Missouri, resulting in a constructive haul of 128 miles in Missouri and 178 miles in Arkansas. Those two were the factors on which the percentages were made upon which that particular revenue was divided. That was not treated anywhere in the lump. The earnings for the entire year ended June 30, 1913, were set up and tabulated between each station in Arkansas and each station outside of Arkansas, and the pro rate made on each separate movement as I have just explained. The intrastate revenues, of course, located themselves automatically to the state and no such division had to be made.

Another matter which should be explained in connection with the assignment of revenues to the state is that in these instances every subsequent entry on the Company's books affecting an item of revenue, was analyzed. All switching absorptions made by the Company applying against a haul any portion of which was in Arkansas, were analyzed and attached to the specific road haul on which that switching was absorbed; that is to say, if on a shipment from St. Louis to Fort Smith the Frisco paid the Kansas City South-
126 ern the switching charge for delivery at Fort Smith, absorbing it, deducting it from its freight revenue in accordance with Interstate Commerce Commissio- accounting provisions, that switching absorption was attached to the road haul to which it belonged, or, in other words, it was deducted from the St. Louis-Fort Smith gross earnings before they were pro rated between Missouri and Arkansas. The same process was followed for the entire year 1913, ended June 30, 1913, in analyzing refunds, over-charges and all items which affected freight revenue either as an adjusting debit

or credit. Nothing was estimated, but each item was worked out in detail. That is true of the passenger earnings as well.

The Court: It does not affect intrastate business?

A. It did not affect intrastate——

Mr. Moore:

Q. You are not dividing between the state and the system——

A. (Continuing:) Except that each switching absorption on intrastate business was properly deducted from intrastate, each undercharge collected on intrastate business was properly added to the intrastate; that is, there was no system of pooling or averaging these adjustments, they were actually located.

In preceding state rate cases there has always been controversy and conjecture as to the assignment of what are known as "miscellaneous" earnings that had been arbitrarily apportioned in all of the—at least in the Missouri and Arkansas Cases, with which I am conversant. That has not been done in these exhibits.

The Court:

127 Q. You explained that it was all loss in the express business and the mail business?

A. Sir?

Q. You explained that there was a heavy loss to the railroad in carrying express and mail.

A. It shows some little residue here after paying expenses and taxes, in these exhibits, but the point I had in mind was this: For instance, switching revenue: That has always heretofore been arbitrarily assigned between intrastate and interstate on some basis, I think in the Iron Mountain Case on the basis of freight revenue. That has not been done here. Each item of switching earned has been actually classified as between intrastate and interstate. All of the switching earned by the Company within the State of Arkansas has been credited to Arkansas. But some of that switching is earned on intrastate business and some on interstate business. Contention has formerly been made that it was not possible to segregate it. We contend to the contrary. We have done it. Where the record of the switching earned was within our own control, that is to say, where the car which we switched and got revenue *got* came in over our own line we, of course, knew whether it was a state or an interstate shipment from our own records. Where a car was given us to switch for another line our records did not afford that information, but we took those car numbers in each and every instance, for this entire year, and went to the records, on the ground, at the local point, of the Company who gave us that car to switch and found out where they hauled it from and to, and whether it was state or interstate. That typifies the analysis that has been made of this "miscellaneous earnings."

128 All of them have been as thorough as that has been. Where it was possible, by any expenditure of time and money, to get those facts we have gotten them. That was the point that I had in mind.

The mail and express earnings, of course, are not classified by us between state and interstate traffic. We set them aside and endeavored to apportion to them on the basis of this formula their proper share or what would be their proper share of expenses. We applied to the express company and asked them if they could give us from their records an analysis of the express business between intrastate and interstate. They replied that they had no record and could not give us the information. We abandoned the attempt, then, to separate that between intrastate and interstate, but simply set it aside with its proper share of the expense. That is also true of the mail traffic.

What I have said has been directed to the division between intrastate and interstate except in the case of freight revenue and passenger revenue where I also discussed the allocation of earnings to Arkansas.

In the case of mail earnings heretofore it has been the plan, at least that was the plan employed by the Iron Mountain, as the record showed, to assign mail earnings to states on a basis of road mileage. At least, that was my understanding of it. In this instance we have taken the mail pay for each individual postal route,
129 and assigned it to Arkansas in accordance with the mileage of that route in Arkansas, or outside, eliminating from consideration any mail routes that had not any mileage in Arkansas. That explains the principle that has been followed all through the allocation of revenues, and the classification of revenues, between state and interstate. Exhibit No. 4 gives a minute detail of it.

Mr. Moore: Let the introduction in evidence of Exhibit No. 4 be noted.

The Witness: Exhibit No. 5 explains the method of assigning to Arkansas and the apportionment between freight and passenger, intrastate and interstate, mail and express traffic, of taxes, rentals and the balance of hire equipment.

The items of state, municipal and county taxes, and of Federal income taxes, have been treated separately because the basis of their levy is different and a different division has, therefore, been necessary. The detail is all set out in this Exhibit No. 5.

Q. Will you introduce Exhibit No. 5 in evidence?

A. Yes, sir. I don't know that I can add anything to what the exhibit itself says as to the handling of those items.

Exhibit No. 6 speaks for itself. It is a table of the major factors, ton miles, car miles, gross ton miles, etc., and of the various time studies and other analyses, which were made directly on the ground during this two months' test period. It is simply put up in this form as a matter of convenience and ready reference for coun-
130 sel and the record of the Court.

Mr. Moore: Note the introduction of Exhibit No. 6.

The Witness: Exhibit No. 7 is somewhat akin to Exhibit No. 6 in that it shows a comparison of the assignment which has been made of operating expenses to the state of Arkansas as contrasted with the expenses for the same period, November and December, 1913, for the whole railroad. It also shows the mileage of the entire line

and the mileage in Arkansas, so that a judgment may be formed as to the fairness of the apportionment to Arkansas of these expenses.

Mr. Moore: Let that be introduced as Exhibit No. 7.

The Witness: We have got the allocation of expenses to Arkansas covered. In Exhibit No. 8 we take up the division of expenses between "line" and "terminal" service. Reference is shown in this exhibit, opposite each item, to the page and item in the formula, setting forth the basis of that division.

Mr. Moore: We offer that as Exhibit No. 8.

The Witness: In Exhibit No. 9 is shown the division of operating expenses assigned to Arkansas, and to line and terminal services, between the freight and passenger service. That shows also, item by item, a reference to the page and item in the formula, upon which each division is based. I introduce that as Exhibit No. 9.

In Exhibit No. 10 there has been treated a matter which has not been touched upon, so far as we know, in any of the state rate cases that have preceded this one: That is the proper distribution
131 over revenue service of the cost of hauling the Company's own material and the transporting of non-revenue passengers. Freight service performs a great deal of non-revenue service, or hauls a great deal of company material for the benefit of both itself and the passenger service. There is a great deal of travel on passenger trains of employes and others on account of the exigencies and necessities of the freight service. It was felt necessary, in order to get at the proper cost of passenger business, to charge the passenger service on some fair basis, as nearly as might be, with the cost of the service performed for it by the freight trains; also to relieve the freight service, and by that I mean the freight revenue service, of such portion of the cost of hauling this company material as was properly chargeable to the passenger business. On the other hand, it was felt also that the passenger service should be relieved of the cost incurred in that service in hauling non-revenue passengers for the benefit of the freight service.

Exhibit No. 10 explains in detail how that was done, the method followed and the result.

Mr. Moore: We offer that Exhibit No. 10.

The Witness: In Exhibit No. 11 is shown the actual application of the figures and the process of relieving the freight service of the burden of the cost incurred by the passenger and of charging that to the passenger, and likewise for relieving the passenger service of the burden it incurred in hauling passengers free on account of the freight service, and charging that to the freight. The
132 figures are shown in detail in Exhibit No. 11, each Interstate Commerce account being treated separately. Thus far we have succeeded, as shown in these exhibits, in getting expenses allocated to Arkansas divided between line and terminal, each of those sub-divided between freight and passenger, and then a proper distribution of the company material, costs, transportation, and other costs. We have then arrived at the cost of revenue passenger

service, line and terminal, separately, and revenue freight service, line and terminal, separately. Included within the passenger costs are the costs of the mail and express traffic, because that is part of the passenger traffic. The business moves in the passenger train and is handled at the passenger stations and with the passenger facilities.

Mr. Moore: We introduce Exhibit No. 11.

The Witness: Exhibit No. 12 explains, or shows, rather, the division of passenger expenses, both line and terminal, between straight passenger traffic, and mail and express, or rather, it shows the results of that division. That has been made, in the case of line service, on what is termed the "car foot mile" basis. For the months of November and December, 1913, the actual consist of cars in every passenger train moving within the State of Arkansas was analyzed and the number of lineal feet in each train assigned to the mail and express service, and assigned to all other passenger train service, were determined, that measurement of the space assigned in each car to each class of service being multiplied by the number of
133 miles that that car ran in Arkansas. Those carfoot mile percentages have been used to divide between passenger service and the mail and express service, or, perhaps, I should have said the passenger carrying service and the mail and express service, the passenger expenses. The results of that division are shown in this Exhibit No. 12, which is herewith introduced.

As explained in Exhibit No. 4, mail and express earnings have been assigned to Arkansas. Now, in EExhibit No. 12, following the various preceding steps, we have set aside the mail and express expenses. From now on the exhibits treat of the division of the passenger and freight expenses between interstate and intrastate traffic.

In Exhibit No. 13 the passenger expenses, line passenger expenses, haulage passenger expenses, from which the mail and express car foot mile proportion has been eliminated, are divided, first, between coaches, Pullman and other cars in the passenger trains, mail and express space excluded. That division also has been made on the basis of the car foot miles, the lineal foot space assigned to coaches and in Pullman cars, and in the auxiliary cars, the baggage cars, the dining cars, the observation cars and parlor cars, the proportions of which have been determined were multiplied by the miles each car ran, according to its use by passengers, or its provision for use by passengers. Those car foot miles have been used to divide expenses of line passenger service, mail and express excluded, between coach service, Pullman service and the auxiliary car service in passenger trains.

134 Q. Auxiliary car service includes what?

A. Baggage cars, dining cars and observation cars.

I want to call attention to one item in Exhibit No. 13; the first column of the exhibit after the reference to the pages of the formula shows the total line passenger expense. Under the head of "Maintenance of Equipment"—maintenance of locomotives: That total line passenger expense is divided between coaches, Pullman cars and

other cars. The per cents representing the car foot mile proportions are shown at the head of the column, but in the case of passenger train cars it will be noted that no allotment is made of that expense to Pullman cars, repair expenses of passenger train cars being divided between coaches and other auxiliary cars in trains, excluding the Pullman. That is for the reason that the Company does not make any repairs of Pullman cars, except, however, accident repairs, and there are none of that character within this particular period.

The Court:

Q. You mean under its contract the Pullman Company does its own repairing?

A. Yes. As a matter of fact, we may actually do the work, but we render a bill for our reimbursement. They stand the cost, they bear the cost. If we demolish a car in an accident we replace it, unless that accident be due to a defect in the car itself.

This exhibit shows for each division the percentages and bases on which it was made. After dividing the expenses between the coaches, Pullman cars and the auxiliary cars, the coach expenses, taken separately, are divided between intrastate and interstate on the
135 basis of the passengers one mile who rode in coaches. That is an actual statement of the passenger travel in coaches for the two months.

It might, perhaps, be well to digress there and explain how the coach passenger miles and Pullman passenger miles are obtained separately.

The Court:

Q. You charge up the expenses of each mile regardless of the number of passengers, and disregard the space of coach——

A. We first made the division between coaches and Pullmans and auxiliary cars——

Q. No, I mean in charging up the expenses you say a "passenger mile" regardless of whether the coaches are full, or whether there are only a few passengers?

A. Yes, sir, because the number of passengers who ride on- mile in those coaches, state and interstate, indicate the use made of those coaches, and, of course, the expense should be spread over each item of that use, be it large or small, in total.

Q. Is there not a greater expense if you carry ten passengers to a coach, only, than if you carry twenty-five?

A. Not in the train expense, sir; not in the line passenger expense, because it costs you no more to haul a full coach, as far as the haulage expense——

Q. I mean, in proportion to the revenue——

A. I haven't considered the revenue at all; this is a question of the use made of those coaches.

In order to get the actual travel and not the conjectural
136 travel in Pullman cars and coaches, separately, we followed this plan: If the tickets and the cash fare receipts rendered to the auditor are examined as they were remitted to the auditor by

the conductor, they in themselves afforded a statement of the passenger travel on the train. Those tickets were examined as soon as they were received by the auditor from the conductor. The auditor was not allowed to open those ticket envelopes and disturb their contents. They were taken charge of by a force under my supervision, who examined the contents, looked up each ticket, saw the journey that that passenger had made in that train, where he came from and where he was going to. In the case of travel on transportation which began beyond the run of that train, or was to be honored on another train beyond its run, which the conductor did not lift, we had the conductor render a report telling where the passenger came from, that is, the origin of his journey; where he got on that train, where he got off and where he was going to, affording all the elements necessary to classify that passenger travel between state and interstate. We had the collection of tickets and these reports kept separate by the conductors for the coaches and for the Pullmans, and gave them a separate envelope in which to enclose them and to mark them. In that way we visualized the actual passenger travel, state and interstate, in the coaches and in the Pullman cars. There was no opinion about it; it was an actual tally and check of the transportation honored in those cars.

Mr. Moore: We will note the introduction of that Exhibit
137 No. 13.

The Witness: I digressed a little in explaining the character of these passenger mile factors. The plan of this exhibit is, first, to ascertain on the car foot mile basis the proportion of expense charged to the coaches, Pullman cars and auxiliary cars and then to divide between state and interstate on the basis of actual travel in each class of car, the coach expense and the Pullman expense separately, and then to divide the expense chargeable to hauling the dining and baggage and other auxiliary cars on the basis of all the passengers in the train, because those cars were used by the Pullman and coach passengers alike. That is the theory on which this exhibit has been put up and these divisions have been made. The exhibit itself states very plainly the process and factors.

In Exhibit No. 14 is taken up the division of line freight expenses between the intrastate and interstate traffic. It is first necessary to divide the expense between the local and the through train, the freight proportion of the mixed train being combined with the locals, because that is nothing but a local train with a coach on the end of it. The actual assignment—the actual allocation of expenses between local and through freight trains was made of such items as directly attach themselves to those respective classes of trains. Wages, for instance, of engine men and train men were actually allocated, taken from the Company's payrolls and time slips for those two months. The fuel for road locomotives was actually charged out to the local and through trains.

138 Mr. Moore:

Q. That is for each train, on each run?

A. Yes; I was coming to that. It was not necessary to make any special test to charge out the fuel, as was done in the Cotton Belt Case and applied on assumption to the Iron Mountain, for the Frisco for a number of years has conducted a fuel economy campaign, in doing which it keeps records of the coal issued, in tons, to every engine on every class of train, upon every trip. We didn't have to make any special test to get the fuel charges to local and through trains; we already had it. In fact, we keep a great many separate statistics as to local and through trains for our own regular daily information. This is one of them. There is no assumption in that figure and no bringing over of the test on another road; it is our own actual coal issues to these two classes of trains and against which the fuel agent balances out his stock of coal and accounts to the auditor for it. In the main, such expenses as could not be actually allocated to local and through trains were divided between them on the basis of the gross ton miles in each class of train. That is, the entire weight of the train from the pilot of the engine to the rear platform of the caboose, including the contents of all the cars and including the average loading of the engine's tank or tender with fuel and water. The theory of that was this: We have here the line expense, as previously determined, the haulage expense chargeable to freight service. The use made of the property in incurring that expense is reflected in the trains which moved over the property. The proportionate use was reflected by the size of the train and the
139 best index we could find of size was weight. We took the weight of the entire train from end to end, and its contents, even the contents of the engine in fuel and water. Some items were not divided on a gross ton mile basis. Some were actually located. Some depended on other divisions, as for instance, the operation of fuel stations was divided on the basis of the charge-out of fuel. That is an actuality, in reality, because the coal is charged out at an average price for the entire railroad, and the money charged for fuel is in reality directly translatable into tonnage, and surely there could be no better division of the cost of operating the fuel stations than the number of tons of coal that are delivered at those stations to local and through trains. That is the division that has been made.

The water expense for freight road locomotives has followed the fuel division, for the reason that a pound of coal burnt in the firebox of a local freight engine will evaporate just as much water as a pound of coal burnt in the firebox of a through train engine. The water consumption directly follows the fuel.

Aside from that, and the actual allocation of wages and fuel, the expenses have been divided between the local and through trains on the basis of the gross ton mile, actual. How those gross ton miles were obtained is explained in Exhibit No. 2. Having, then, the local train expense and the through train expense, the division of the local train expense was made between intrastate and interstate business on the basis of the net ton mile contents of the cars carried on a local train. That was determined as the result of an actual test,
140 as described in Exhibit No. 2. The same is true of the through train. We did not get the figures for the local train

and deduct them from some total which was already of record and say that the balance was the through train, as was done in the Iron Mountain Case, of necessity, because the state did not have the through train performance and could not get it at that time, but we also actually analyzed the through trains just as thoroughly as we did the locals, and there was no process of deduction here. This is an actual analysis. That covers the division of line freight expenses between state and interstate traffic through the medium of the division between local and through trains.

Mr. Moore: This exhibit is introduced as Exhibit No. 14.

The Witness: In Exhibit No. 15 is described the division, in detail, of terminal expenses between intrastate and interstate traffic.

I would like to say here that each of these exhibits, where it is based on a preceding exhibit, shows a complete cross index so they can be followed: also a reference to the pages of the formula.

This division has not been made, as was done in the Iron Mountain Case, where the Interstate Commerce Commission's grouping of station expenses was divided on the basis of the state tons mul-
141 tiplied by two, and the interstate tons charged with one terminal, and that in the lump, for the state. The station portion of this terminal expense has been divided on the basis of the actual tonnage handled in and out of each individual station during the two months. In the Iron Mountain Case the yard expense (a portion of which is found in this terminal expense) was divided on the basis of cars handled. The division here has been upon the basis of cars received and forwarded, but not in total for the state. Each individual yard was treated separately, and the expense of that yard treated separately, so there was no over-burdening or misdistribution by reason of lumping all of the yards in the state and all of the cars handled in the state. The local conditions of each yard are reflected in this detail division.

But there is more in this terminal expense than what is ordinarily known as station and yard service. In former cases there has always been a great deal of controversy as to how much switching the local freight train did on its journey each day. That has been a matter of assumption and conjecture. Here, for two months, we found out actually how much time each local freight train in this state switched, each local freight train on the Frisco in this state. We know how much time it devoted to switching and loading and unloading freight at each station every time every train stopped. We know how long it stopped for other purposes such as taking coal and water, meeting and passing trains, or getting orders. That latter class of
time has been charged to line service because it is necessary
142 for the running of the train over the road, not for the station delivery or receipt of freight. We have segregated the actual performance of these local and through trains and found out how much time they devoted to this terminal service, and we have divided that expense on the basis of that time. Heretofore there has always been buried in the case of both the local train and through train this item of expense, or element of expense, which had nothing to do with the moving of that train over the road. These are not haul-

age costs, but are really terminal costs. In fact, the local freight train supplants the switch engine when it stops and works at a station for an extended period, a greater or shorter length of time, and that really is a yard function, a terminal function. It simply does that as a matter of economy and expediency to avoid keeping a switch engine there. We have analyzed that time and have charged the station service time, the terminal time, to terminal service. It has not been buried in the haulage cost and charged to each ton mile alike, but it has been located to that station and charged to the tons that were handled at that station, state and interstate. That explains one of the vital differences in the method heretofore followed and the method that has been followed in these exhibits. This terminal cost that we are analyzing has been built up in that way.

Mr. Moore: That will be introduced as Exhibit No. 15.

The Witness: In Exhibit No. 16 is set forth the division of terminal passenger expenses, mail and express previously having
143 been excluded, between intrastate and interstate.

Terminal passenger expenses differ in their nature from terminal freight expenses. The passenger does not have to be loaded or unloaded. We don't switch any cars to enable him to entrain or detrain. The engine does little or nothing for him as a matter of terminal service. The work that is done in terminals, in yards, to prepare passenger trains by switch engines has not been considered as, and is not, a terminal service. It is an incident in preparing that train to run over the road, and has been charged to line service.

The Court:

Q. You say it is not considered a terminal service?

A. No, sir, not in the sense that it has been used here. That switch engine is not necessary to enable passengers to embark or disembark.

Q. I understand, but getting trains ready and breaking them up.

A. Yes; that is to prepare the train to run over the line. The situation is different in the freight service. The switching is done so that the freight may be unloaded on a car placed at a warehouse. That is the point.

Q. What is that charged to, the expense of making up trains and breaking them up, passenger trains?

A. To the line expense, haulage expense. To carry that explanation a little further: A passenger train stops at a way station on the road and stays there ten minutes loading and unloading passengers. That is a terminal service just as it was in the case of the freight and it has been——

The Court: I understand.

144 A. (Continuing:) So charged, but it is not——

Mr. Moore:

Q. Have you taken up the breaking up of freight trains?

A. Yes, we are coming to that. In Exhibit No. 2 you will find a detailed statement of how we had the foremen in charge of each

switch engine in this state make a study of his time and the time of the engine in his charge, for two months, and detail the class of the service in which that engine was engaged, and that shows the time devoted by each engine to the making up and breaking up of freight trains, to the handling of cars which stopped at stations for icing, and to the handling of cars for loading and unloading at that station. Now, there is a difference between the two services: The first item, making up and breaking up trains, even in the freight service, was a line service preparing that train to run, but when it came to handling cars for loading or unloading at that station, then the switching became a terminal service. Those were kept separately by each yard engine, and also the passenger time kept separately. That is Exhibit No. 2-I, which details how that was done.

These sixteen exhibits that have gone before and have been offered in evidence have explained how expenses were assigned to Arkansas, how they were divided between line and terminal, freight and passenger, state and interstate, and mail and express, and how the company material burden was adjusted, all for the two months ended November and December, 1913.

145 Now, in Exhibit No. 17, there is set forth the results of those divisions and a summary of the expenses of freight and passenger, intrastate and interstate, and mail and express traffic. Then in this exhibit the expenses assigned to intrastate passenger traffic have been divided by the intrastate passenger miles actually determined within this period, and the cost per passenger mile for all expenses so arrived at, intrastate. The same process has been followed for the interstate dividing the expenses by the interstate passenger miles and the cost arrived at per passenger mile, and the excess cost relation of the intrastate to the interstate determined.

The Court:

Q. How do you determine the excess cost?

A. By dividing the state, intrastate, I should have said, passenger expenses by the intrastate passenger mile. That gives us the cost per passenger mile, intrastate.

Q. Then it is obtained per passenger mile?

A. Yes, sir, because in the last analysis that is what the passenger service does, it produces passenger miles; it hauls passengers over distances, and all these other divisions——

Q. Suppose in the one instance it is interstate business, you haul local cars a long distance, so the passenger haul, of course, would be much greater; and in the other instance, in the intrastate business, it is fewer passengers to the car and short hauls, but you charge only according to the passenger mile?

A. You will find, I think, your Honor, that those considerations that you mention have been taken care of in the detail that

146 leads up to this, because the division has been made in each instance.

Q. Then they have been taken care of?

A. Yes, sir, we think so.

Q. You say they have? I understood there was a difference——

A. We think so.

Q. (Continuing:) I remember in the other case it was claimed there was considerable difference.

A. Yes, but here we have in this exhibit the concrete effect of considering all those things which you mention and we have accumulated, then, after considering them and treating them, the cost which we have assigned to the state passenger business and the cost which we have assigned to the interstate passenger business. We wanted to find the relation of those two and we divided each by the passenger miles of each and we found the cost per passenger mile, which we had accumulated, and we found that the state cost, the intrastate cost, per passenger mile, after considering all of the factors that I have mentioned, all that detail, on the basis of the use that is made by the intrastate passengers of the property, was 15.43 per cent, very close to the estimates that have been made as a matter of conjecture, but which we worked out actually.

Following this same plan with the freight, substituting ton miles for passenger miles, we found, as shown in this exhibit, that the extra cost for the freight service, intrastate, was 319.58 per cent.

147 This exhibit brings to a focus the results of the two months' test that we made, our effort being through this detailed analysis and application of this formula to work out for this test period which we consider representative, at least the excess cost of intrastate passenger and freight business over interstate, and substitute that detailed, that careful, close to the ground analysis, for the expert opinion that has gone heretofore as to those extra costs.

The Court:

Q. Are the items considered by you so general that they may be taken as representative of any year, any month or any time?

A. We have in process of preparation figures which we believe, as to the traffic and operating conditions, will show that; whether they do or not, of course, will depend upon their submission and examination here. We are preparing it and it is our judgment at this time, as far as we have gone, that this is a representative period. That may be refuted.

Q. And will apply just as well to 1906 and 1907, as it does to 1913 and 1914?

A. We believe in our ability to convince your Honor of that.

Q. What is that?

A. We believe in our ability to convince your Honor of that.

Q. You have evidence to show how it applies?

A. Yes, sir.

Q. That is the objection that was made by Judge Hill.

A. Whether it will be sufficient will depend, but we think at this time that it will.

At this time recess was taken until 2 o'clock P. M.

148 After recess on Monday, June 15, 1914, the following proceedings were had at two o'clock P. M.:

Mr. Moore: Mr. Hamilton, your attention was called by the Court to the manner of dividing passenger expenses on passenger miles.

Will you please explain your view of the basis upon which that division was made?

A. As I understood the inquiry, it referred to the division of passenger line expenses between intrastate and interstate passengers. The explanation was offered that those expenses had been divided as between the coaches in the trains, the Pullman cars and the auxiliary cars which served both coach and Pullman passengers, that is, the dining and baggage cars, etc. As I understood the Court's question, it was whether or not that was a fair division, when a car might contain only five intrastate passengers and another car of the coaches might contain twenty-five interstate passengers. It seems to me that that could be properly answered in this way: There has been assigned to each, the coach traffic and to the Pullman traffic its proportion of the expense of operating passenger trains in line service on the basis of the space occupied in trains by the coaches and the Pullmans. We thought if that expense, after being assigned to the two classes of cars, be divided on the use made of the coaches and of the Pullmans respectively by state and interstate passengers, the use division will have been made. It costs no more so far as line or haulage expense is concerned in passenger service to haul a coach with one hundred passengers in it than it does to haul a coach with one passenger, that is, practically no more. The difference is infinitesimal. Having the expense of the trains
149 there, and having it properly assigned to the various classes of cars, it seemed to us it might be properly assigned to state and interstate on the basis of the passengers riding in those cars, giving consideration to the distance which they rode. The terminal passenger expense is another matter. Each passenger gets his share of the burden every time he uses the station. I think that answers the question.

The Court: And that you divide by the mileage of the passengers?

A. The line expense?

The Court: The terminal expenses?

A. No, sir, on the basis of the number of passengers entraining and detraining at stations.

The Court: State and interstate?

A. Yes, sir, state and interstate.

The Court: At each station the number of passengers that got on and got off?

A. Yes, sir, the number of passengers state and interstate, separately.

The Court: Your exhibits show with each station in the state of Arkansas how many passengers got on and off for intrastate and interstate?

A. No, sir, the exhibit shows the concrete result of that division. The detail of the working papers which we have submitted to the state accountants that they haven't gotten around to yet do show that information.

Mr. Moore: The last exhibit introduced by you was No. 17?

A. Yes, sir.

Q. Now take up 18 and explain what that is, please.

A. With Exhibit 17 we had accomplished for the months
150 of November and December, 1913, the presentation of the division of expenses between line and terminal, freight and passenger, mail and express, state and interstate traffic for those two months; and in exhibits 17 itself is shown on the basis of cost per passenger mile and per ton mile, the excess cost per passenger mile and per ton mile of intrastate traffic over interstate traffic; but before offering this next exhibit I would like to explain what use was made of the extra cost percentages which were determined as shown in Exhibit 17.

We felt we had substituted for the expert opinion which has been given in prior state rate cases an actual figure, representing the relation of the cost of the two classes of traffic as determined by this test. When we went into the prior periods, that is, the years ended June 30, 1913, 1912, 1911, 1910, and the four months ended December 31, 1907, which the original affidavit in this case covered, we felt that we could take those extra cost percentages back into those periods as reflecting proportionately the excess cost of intrastate traffic over interstate. So that speaking in general terms when the division of freight expenses and passenger expenses in those prior years, which are covered in the subsequent exhibits, was made, it was made by adding to the ton miles and passenger miles intrastate, these percentages of extra cost determined in this test period. That was the connecting link between the test period and the prior years.

In other words, in the year 1913, let us assume that we had 10,000,000 intrastate passenger miles——

Mr. Moore: Of each of those years taken separately?

151 A. Yes, sir. Let us assume that in the year 1913, we had ten million intrastate passenger miles and twenty million interstate passenger miles. We added one million, five hundred thousand passenger miles to the intrastate, 15%; and having thus added the proportion of passenger miles to represent the extra cost, we added that increased figure, eleven million, five hundred thousand passenger miles intrastate, to the twenty million interstate, and used those as factors to determine the percentage relation, including the extra cost of the intrastate business.

The Court: So you went by percentage, and it would not make any difference whether the cost of the operating expenses of the railroad in 1913 was greater in 1907 or 1910, or any other year, but the percentages remain the same?

A. Yes, sir. The assumption we make is that that extra cost percentage developed in this test period is reflective of the cost relationship of the two classes of traffic.

The Court: And that does not change?

A. Yes, sir. That is our contention. It will be shown to be a normal relationship in this test period.

With that explanation I would like to take up our figures for the first of these years, the year ended June 30, 1913, the fiscal year last closed.

In Exhibit 18, we have shown the value of the roadway and struc-

tures in the state, and of rolling stock used within the state of Arkansas, and its division between the freight and passenger, state and interstate, mail and express services. Following exactly the general principle laid down in the formula, that expense should be
152 divided upon the basis of the use made of the property, we have so divided the value of the property on the basis of the use as typified, or as indicated, rather, by the division of expense.

In the first page of this exhibit is set up the valuation of the property, the original cost value of the property of which the railroad stood possessed as of June 30, 1913. That value was determined by our chief engineer, Mr. Jonah. The detail shown on the first page of this exhibit was furnished by our chief engineer. It classifies the value, first, of the roadway and structures as between property devoted to freight terminal use, passenger terminal use,—used in common by passenger line and passenger terminal service, used in common by freight and passenger in terminal service.

The Court: What is the object of that? What difference does it make? The question is, whether or not passenger and freight rates as a whole are remunerative or not, unless it is done for the purpose of showing how accurate the figures are. But what is the necessity of allocating between passenger and freight?

A. On the last page of this exhibit, Your Honor, is shown a summary in which all the property of the railroad in Arkansas is ultimately divided between intrastate and interstate, intrastate and interstate freight, passenger, mail and express, the object being to arrive at the value of the property, and to divide the value of the property used by each, in order to figure the return earned by each.

The Court: It makes no difference what the return is. Suppose there was 12% return on passenger and 1% on freight, and it reduces the whole to 4%.

A. As a matter of fact, we have no return.

153 The Court: I mean, assuming that. It would make no difference. The question is, taking the entire intrastate business, passenger and freight, are the rates compensatory?

A. We had this question before us. We thought the Court or the state might want to rearrange our figures, and if they did——

The Court: It might be of some value for the purpose of enabling the state and also the Court to ascertain whether your final figures are correct?

A. That is the point exactly; but otherwise they are of no value.

Mr. Moore: It is for the purpose of giving the detail, and it is summarized on the last sheet?

A. Yes, sir.

The Court: There is no necessity of going into those details now, except the state might go into the question on cross examination.

Mr. Hill: It makes a radical difference whether it is apportioned between freight and passenger, if it is all done on the same relative division.

The Court: I mean about the valuation.

Mr. Hill: I understand that is done on valuation as well as expenses.

The Court: Why?

Mr. Hill: I understood, roughly speaking, the passenger intrastate traffic is 40% and interstate, say, would be 60%, and when you strike the freight side of the proposition, the interstate traffic would represent about 85%, and it would make a good deal of difference when you come to make a division of property
154 whether so much is devoted to freight and so much devoted to passenger.

The Court: The question is, what is the final result, the final income; what are the net earnings on the valuation?

Mr. Hill: If they go and jack up the passenger and lower the other, it makes a great deal of difference on the return ultimately, because if they jack up one class of property at the expense of the other, the returns relatively from the passenger business may be greater or less than the other. You will find it works out here differently.

The Court: Finally we come to this: What are the gross earnings of the state business, and what are the gross expenses of the state business?

Mr. Hill: That is the last question.

The Court: That is the final question. And as to that it doesn't matter whether the largest profit comes from the freight or the least profit comes from the freight and the other from the passenger, if upon the whole the rates are remunerative, the case falls to the ground. If they are remunerative, although one might be confiscatory, still it would not entitle them to the relief they ask.

Of course, these details are of great value to you to determine whether their figures are correct, and where not correct you may show it.

Now as to the valuation: Is there an agreement as to valuation of the property in the state?

Mr. Moore: No, sir, there is no agreement as to that. We expect to give proof upon that subject, unless we come to an agreement later on.

The Court: There is an allegation as to the value.

Mr. Moore: I expect to introduce evidence.

155 The Court: I understand that. But do you expect to introduce evidence to show the valuation is greater, and then amend the bill to conform to that proof? My understanding is that the valuation in the original bill was that fixed by the State Railroad Commission.

Mr. Moore: If necessary I will do that.

The Court: If the proof shows a greater rate, of course unless the bill has been amended it would be necessary to do it.

Mr. Moore: If necessary, I will amend as to that.

The Court: Well, go on.

A. We understood the opinion of the Supreme Court in the Minnesota case to mean that the value of the property should be apportioned between the various classes of traffic on the basis of the use made of the property. We have found that there is a terminal use and a line use, a freight and a passenger use, a mail and an express

use. For that purpose we have endeavored to determine the use of the property in classifying it here; that is, the use of the property which was used exclusively in freight terminal service we have set up as freight terminal property.

In the case of common depot buildings used jointly in freight and passenger service, we have divided as common to freight and passenger terminal. Taking another illustration: The straight main line track between stations, and its appurtenances, we have considered as "freight and passenger lines" in accordance with its use. That was necessary, if we were going to divide the property in accordance with use, to make as many primary classifications of direct use as we could. That is what I had in mind on the first sheet of this exhibit.

156 The plan followed in general was to divide the property on the basis of the division of operating expenses. That is, the freight terminal property was divided between intrastate and interstate, on the basis of the apportionment of freight terminal expenses. Because the division we had made of freight terminal expenses was upon the use basis and reflected the use——

The Court: What do you call the "use" basis?

A. It runs through a multitude of items, your Honor. The freight terminal expense is composed of the expense of handling traffic at stations properly chargeable——

The Court: Do you make a distinction between the different classes of traffic?

A. Yes, sir.

The Court: Do you make a distinction between first class traffic and commodity rates?

A. No, sir.

The Court: Do you make a difference between first class traffic and lumber?

A. No, sir.

The Court: Do you go by weight?

A. Yes, sir.

The Court: Then it is a ton mile?

A. No, sir.

The Court: What is it?

A. It is the ton with this refinement, that less-than-carload tons have been treated and handled separately.

The Court: I understand. But you make no difference between one class of traffic and another; regardless of the revenue you take simply the weight?

157 A. Yes, sir. The revenue has not been taken into account anywhere. The revenue has entered nowhere into the division of expenses.

The Court: How do you charge the losses?

A. Loss and damage to freight?

The Court: Yes.

A. Actually.

The Court: Well, how do you divide that? Isn't there a differ-

ence between the loss on first class freight in case of accident, between a carload of flour and a carload of rock?

A. Yes, sir.

The Court: How do you divide that if you take only the weight? Taking even a terminal,—supposing one of your stations burns up, it makes quite a difference whether it burns 500 barrels of flour, or 200 boxes of valuable dry goods, or whether it burns up ten carloads of brick?

A. Yes, sir. But that loss and damage matter is handled entirely different. That is, whatever the loss at a freight terminal, that is, the destruction of the station——

The Court: The destruction of the station is terminal, and the freight is freight.

A. Yes, sir. But the freight destroyed in that station would be either state or interstate freight.

The Court: Say it is intrastate only.

A. The claim which we paid, and which ultimately worked out into the voucher which we issued for that loss, told us whether that was a state or interstate shipment. We examined every voucher for the year.

The Court: I understand. But say it was all intrastate. You say you do not charge any greater terminal expense to a ware-
158 house full of valuable freight than to a warehouse which would not be injured more than 5% or 10% by the fire, and was practically nothing?

A. That was one of the items which we did not have to average. We consider a ton of freight handled at a given station equivalent in cost of handling to any other ton. The mere accident of its crossing the state line made no material difference in the cost of its handling at the stations. True, there would be a difference between the cost of handling light and handling heavy——

The Court: Say glassware; that had to be handled with greater care?

A. Yes, sir. But as between state and interstate, which is the ultimate division we hope to reach, and think we have reached here, we contend the same commodities, light and bulky, dense and not dense, move side by side.

The Court: The reason you do not think it necessary to make a distinction is because the average in the one class is about the same as the other?

A. Yes, sir, that is our idea. Answering the loss and damage question, that was not put in on the tonnage basis.

The Court: You do not handle that as a station expense?

A. Yes, sir, we went straight to the vouchers and handled that as state and intrastate. The general principle of the Exhibit 18 is the division of the values as set forth herein between freight and passenger, line and terminal, state and interstate, on the basis of the division of expenses previously ascertained; or, to be more accurate, on the basis of percentages derived from the apportionment of
159 expenses previously ascertained, so that this reflects in the division of value the same use factors as we used to divide the

expenses, and if the expenses have been divided on the proper use basis then the property has.

There was used in this exhibit one item which perhaps should be explained in some detail. The physical property roadway and structures within the state, was a matter of appraisal, surveys, and determination by the engineer. It is here, it is fixed, can always be seen and its value determined. The rolling stock of the Company, however, is not a fixed quantity in Arkansas, and cannot be determined. The Company moves its locomotives from operating division to operating division, from state to state, as the necessity of its traffic dictates. Its freight cars are scattered broadcast over the entire railroad and other railroads. Its passenger cars are not confined within state lines in movement. It became necessary to assign to Arkansas as the value of the proper amount of equipment necessary to operate its railroad in this state, a certain proportion of the rolling stock. And that has been done, as described in this exhibit, beginning on page 2, on a mileage basis. In the case of passenger cars there is no great variation in the value or cost of cars running in Arkansas as compared with those composing the passenger car complement of the railroad as a whole. Nor is there any great variation or distinction in value per unit of the freight cars used in Arkansas as contrasted with the whole railroad. So we felt we might fairly assign to Arkansas as passenger car value, a passenger car mileage proportion of the entire passenger equipment owned by the railroad.

160 The Court: Isn't it customary to use inferior, or older cars for the local trains or state trains, than for interstate or transstate?

A. I don't think you would say that, your Honor, if you saw the cars on the local trains running through Arkansas. I can visualize one now: Our 103 running on the Ozark Division through Arkansas, a solid steel train, stopping at every station.

The Court: But I have traveled on some trains in Arkansas that do not come up to the Empire Limited.

A. Yes, sir, but we have less branch lines in Arkansas in proportion to main line than we have in any other state, but there is no great difference in the equipment. The cars running here today will probably be running through Missouri tomorrow, and run jointly between the two states, because as you know, we cut all the corners of the state except one. We have very few local trains confined entirely to the State of Arkansas in their journey. So the equipment used here is about the same as used in other states.

For the freight and passenger cars we made a car mile division. As for locomotives, owing to the fact that there is a variation in the value of locomotives, and we have engines that cost as low as $9,000; and we have some that cost as much as $32,000, in service on the road today. And these engines are moved from state to state, and from division to division as the traffic necessities arise.

We felt we should go further. There was not the same equality of value, unit for unit, between our motive power units, as between our freight car units and between passenger car units. So we took

for the two months, November and December, 1913, the mile-
161 age run by each individual engine within the state of Arkansas, and each individual engine upon the whole railroad, and we multiplied the mileage made by each engine by the value of that engine, and built up a constructive figure which we called, for purposes of ready reference, "value mileage," which indicated the value of the power unit multiplied by the mileage it had made. We had then the total of the value mileage made by locomotives in Arkansas, and upon the railroad as a whole. We found what percentage that constructive Arkansas figure was of the entire line constructive figure, and we assigned that percentage proportion of the entire locomotive value that we owned, to the state of Arkansas. We think that is set forth in plain detail in the exhibit. We considered that a fair basis of apportionment, because it represented the value of the locomotives attached to the actual service they performed in this state.

The Court: You say you used the locomotive mileage?

A. Multiplied by the value, yes.

Q. What allowances are made for the differences in freight carried by some of these large locomotives, which haul probably twice or three times as many cars, don't they?

A. Yes, that is true.

Q. How do you make allowance for that?

A. That large locomotive which drew, let us say, three times as many cars as the smaller locomotive, by reason of its larger size, and the heavier service exacted of it, would get probably three times as much expenditure for repairs as the little engine that drew the light train.

In dividing our expense of maintenance of locomotives, we have divided it on the basis of these repairs, and divided the locomotive value on the basis of repairs, because the repairs to our mind
162 indicated the result of the use we got out of that locomotive. You will find that running all through these valuation exhibits. But the big engine on the long train had more repairs than the light engine on the short train: it got more repairs, and it got its proportion on the basis of the use of that locomotive.

Q. Then it appears in the data of the earnings of these different locomotives?

A. No, sir, it does not appear by individual locomotives.

Q. Not as individual locomotives, but as a whole?

A. Yes, sir. You will find the expenses of local trains and through trains set up separately. They have their proper proportion on the basis of the gross ton miles that the engines hauled, of these repairs.

Q. In other words, the value charged to the larger locomotive is so much greater than the other, because you multiply the $32,000 engine with the same mileage as you do the $9,000 engine?

A. Yes, sir, if they made the same mileage.

Q. In other words, if there is a difference of 9 to 32, it is that much difference which is charged to the big engine which hauls practically all the interstate freight on the through trains?

A. Yes, sir, sometimes. But the point is that we have charged

Arkansas with the mileage each engine has made, and with the value of that engine in proportion to the mileage it made.

The balance of the exhibit is in narrative form, and explains the interdependence of these exhibits. But I thought I would explain that in detail in filing that exhibit.

163 That was the apportionment of the value of the property for the year ended June 30, 1913.

In Exhibit 19 the taxes have been apportioned for the same year. I made the division between state, municipal and county taxes, and the Federal income tax, because the basis of the levy of those taxes is different.

Q. Income tax?

A. Yes, sir, beginning with 1913, and going back to 1907.

Q. That would not be taken into consideration, would it?

A. Except in 1913.

Q. In ascertaining whether the rates were confiscatory at the time the bill was filed?

A. No, sir, that stands on its own bottom as a separate exhibit. We expect to show that the rates were not only confiscatory then, but that they continued to be so.

Q. On the engines there is quite a difference in the value between 1907 and 1913?

A. Yes, sir, that is true.

Q. Your exhibit is based upon the valuation at the time?

A. Yes, sir, the acquisition cost of the property.

Q. The bill is based upon the value at the time the suit was brought?

A. I do not know as to the bill. I was speaking as to the exhibit.

Mr. Hill: That is one of our numerous objections.

The Court: I understand. Of course, that has to be taken into consideration.

Mr. Hill: I don't understand so. I don't think it should

164 be taken into consideration at all, your Honor. The old valuation was away back there in 1907.

The Court: I don't mean only valuation, but all other matters. Of course the court will come to realize the fact that at the time the bill was brought the theory upon which it was sought to obtain relief was one that had been practically adopted by all the courts in deciding these cases, and now the Supreme Court has decided that that is a wrong basis. Now, you try to conform to the rule established—or what is supposed to be established, and the only way perhaps that can be done is by comparison.

If this is a court of equity, and if they are entitled to relief, if the rates are confiscatory, they are certainly entitled to relief no matter how it is proven, so it is established to the thorough satisfaction of the Court by proof, which is clear and convincing.

A. In explaining the reason why we began with the year 1913, we made a test period of two months subsequent to that year—that is, November and December, 1913. We also, except for the detail

that is shown in the Exhibit for the year ending 1907, made a complete analysis of this last fiscal year to see if it would not bear out many of the things we had developed in the test period. For that reason we began with the year 1913 and worked backward, finally reaching 1907. The exhibits show, on the basis prepared upon, not only was there no return on the two cent rate and on the Standard Distance Tariff in 1907, but not any since, right up to and including 1913. And we thought it was necessary to show that and put in these exhibits for that purpose.

165 The taxes are a simple matter set forth in Exhibit 19. Being levied on the value of the property, they have been divided on the basis of the value of the property. The net income tax being levied on net income has followed the division of net income as determined in subsequent exhibits.

In Exhibit 20 there is an apportionment of the net credit for hire of equipment. It happens that the Company had and still has more equipment than it needed for its own purposes, there being a slight balance in its favor over the amount received for equipment hire or rent than those paid. They have been divided in accordance with formula Exhibit No. 1, and set forth here in detail principally upon a mileage basis, in some cases upon the value of the engines, but principally upon the mileage basis because that reflects the use and reflects the incurring of the hire of equipment charge, or the earning on the hire of equipment credit.

Exhibit 20-*a*, we had to interpolate, in order to get it in its proper place. In this exhibit we set up an analysis of the net credit for rental, accruing to the company in Arkansas. It sets up in detail the rental income of the company, which includes in the year 1913, $304,000 as Arkansas' proportion of the rental of the Memphis Bridge. That is credited in this exhibit. It charges all the rents incurred by the Company, and shows the net rental credit accruing to the state, amounting to $128,000 which is applied in these subsequent exhibits, before we arrive at our net balance available for return.

The Memphis Bridge credit has all, however, been assigned to interstate traffic, for the reason that no state traffic is handled upon that bridge, so necessarily it is all interstate traffic.

166 In Exhibit 1 on page 7 and its annotated modifications, will be found a complete detail of how this analysis of rentals, and their assignment to Arkansas, was made.

I might say in that connection, not only have we credited half of the rentals earned by the Memphis Bridge to Arkansas, but also all the earnings of the Memphis Bridge upon a mileage basis, on the freight and passenger traffic—in addition to the rentals. That applies to all of the exhibits and all the periods in which final return is shown.

In Exhibit 21 is explained how the percentages of extra cost of intrastate traffic, determined for the months of November and December, 1913, have been applied to the ton miles and passenger miles of the year ended June 30, 1913, and the expense of that year is divided on the resultant percentages. Then those expense figures

and the apportionment of taxes referred to, and rentals, and hire of equipment, and apportionment of earnings, described in Exhibit 4, are carried in detail into Exhibit 22, which summarizes the earnings and expenses and their apportionment; and also the taxes, rentals and hire of equipment for the year.

It shows the apportionment of value which we referred to formerly in Exhibit 18, and what return the Company earned on the various classes of traffic based on that value. The exhibit shows that upon earnings based on a 3 cent passenger fare, and upon the Court's tariff, in the year 1913——

The Court: In 1913, did they have a two cent rate?

A. No, sir, not until July 14, 1913.

Q. I thought that was for November and December, 1913?

A. No, sir, it is the result of that test applied to the pre-
167 ceding fiscal year.

Mr. Hill: That was a 3 cent year, too?

A. Yes, sir, that is a three cent period. We were on a 3 cent basis and the basis of the court tariff rate.

We had a return, according to this exhibit, which has been prepared on the basis described in previous exhibits—on state freight in 1913, of 1.07 per cent; and on our state passenger business 1.99%; and on our total intrastate business, 1.61%. Those are based upon a 3 cent passenger rate, and the court tariff rates. We have worked up——

The Court: And on the freight rates fixed by the court tariff.

A. Yes, sir. We have analyzed the traffic of the entire year upon the basis which we have explained, and made a comparison of the court tariff rates, and the application of the Standard Distance Tariff No. 3 rates, which are in controversy here; and if we had applied to the actual traffic of that year the rates promulgated by the Commission and first enjoined by the railroad company, we would have had a diminution in our state freight revenue of $29,000, leaving us only $800.00 as a return available on our property investment in this state—an amount so small I cannot express it intelligently in percentages.

On the assumption of getting 2 cents per mile, and we could get it only where we are the short line and not where we are the long line, we would have had a deficit of $64,800 that year.

Q. On state passenger traffic?

A. Yes, sir. In other words, we would have been $13,000 short on our state passenger traffic of earning enough gross to pay our operating expenses alone, as assigned in this exhibit.

168 Mr. Hill: You have been making those deductions assuming the same freight would have moved under Standard Distance Tariff No. 3 as did move under the court tariff?

A. What we did was to take the actual commodities which moved, way-bill by way-bill, during the year and rerate them under the Standard Distance Tariff.

Q. That is assuming the same freight would have moved under Standard Distance Tariff No. 3, as did move under the court tariff?

A. Yes, sir, because we had no means of knowing whether more or less would have moved. That would be mere conjecture.

Q. And the same thing under passenger—you have assumed that the same number of passengers would have traveled under the two cent rate as actually traveled on the 3 cent rate?

A. It carries the assumption there would have been little if any real stimulation of traffic. That is the assumption under which we arrived at it.

Exhibit 22 gives the results for the year ended June 30, 1913, and as a result of the work done in the tabulation set forth in all the preceding exhibits.

In Exhibit 23 we have explained the method we employed in ascertaining the figures for earnings and expenses assigned to Arkansas of the various classes of traffic in the years ended June 30, 1912, June 30, 1911, and June 30, 1910; and also for the four months ended December 31, 1907. It took almost ten months and the expenditure of about $35,000 to get and prepare the figures contained in the first 22 exhibits we have submitted. It took all of our time; as Judge Hill told you this morning, he got his copies
169 of exhibits only within the last ten days, and some of them within the last three or four days, with every available help at our disposal and the lavish expenditure of money, and it is only within the past few days we have had this case ready for the presentation we have made. Had we gone back and made the same detailed analysis—assuming that the records are all in existence, and perhaps they are, but I am not clear on that—but had we gone back and made the same detailed analysis we did for 1907, it would have taken us four or five years to complete our preparation for this case.

But the problem being the assignment of earnings to Arkansas, and dividing them between freight and passenger; and assigning the expenses to Arkansas, and dividing them between the freight and passenger traffic, we had one thing we could tie to. The railroad company in making its reports to the State Railroad Commission since 1909 or 1910—certainly in 1910—the first year covered here as a whole year, had made an assignment to Arkansas upon a basis or formula which it has used uniformly during all these years, and is still using. It is merely an approximation, it is true. The railroad also had a formula which it used to divide those expenses, not to report to the Commission, but for purposes of its own operating comparisons between freight and passenger service. We had available the results of the application of this old formula which the railroads have been using these several years past. We had the result of its application to the earnings and expenses of this state, and the earnings and expenses of the system, in assigning them to
this state for the year ended June 30, 1913. During that
170 year we, ourselves, on this new formula, filed as Exhibit 1, had worked out in minute detail, account by account, these divisions.

We found the effect of applying this new formula to the earnings and expenses of this state, was the result of that application bore a

certain relation in this year 1913, to the result of applying the formula which had been in use all these years. That is, it would assign a given item of earnings and expenses under the new formula, and Arkansas got an assignment which was 102% of what was reported to the State Railroad Commission. We assumed the relation of the results of applying these two formulas was that the new formula would apply two per cent more on that item. In some cases it would apply two per cent less. On the whole the new formula assigns to Arkansas about 98.98 per cent of expenses as compared with the old formula's 100%. So we felt that the comparison and the equating of the results which the Railroad Company obtained under its old formula, and reported to the State Railroad Commission in prior years, was tantamount in effect to going back and working out those years in detail, on the basis of the new formula. In other words, we felt we could express the relationship of the two formulas in percentages, which we did.

So, then, in 1912, which will serve as a type of all the years preceding it, we took the amounts which had been reported to the State Railroad Commission which had been ascertained as to both earnings and expenses for the State of Arkansas on the basis of the old formula, which was used in 1913, too, and equated those on the basis of applying the two formulas, the old and the new, in 1913.

171 This method we have employed in going all the way back. I think it is set out better in Exhibit 23 than I can set it out verbally.

A point which should be borne in mind in connection with that is that the basis of the formula used by the railroad, and which was contrasted in 1913 with the result obtained by using this new basis, had been used by the railroad company in reporting to the State Railroad Commission throughout all the years mentioned here, and a comparison therefore could be made with those figures which are of record.

Exhibit 24 covers completely the results for the year ended June 30, 1912, arrived at on the basis which I have just described. I want to say, however, that after we got the earnings assigned to Arkansas, and had the expenses assigned to Arkansas, and divided them between freight and passenger service on the basis of this equation, we then divided them between interstate and intrastate on the basis of actual ton miles and passenger miles hauled in each of those years, state and interstate, with the same percentage of extra cost that underlies the whole thing.

In 1912, we were operating under the Court tariff and on a three cent passenger rate. On the basis of the Court tariff rates, we did not earn enough to pay freight operating expenses, taxes, rentals and hire of equipment. On the basis of the three cent passenger fare we earned on our intrastate passenger traffic 4.34%. If we had charged a flat two cent rate, on the same volume of traffic we would have been $38,000 short of earning our operating expenses, taxes, rentals and hire of equipment. There would have been a deficit.

172 The Court: Assuming, of course, that the same number of passengers travel?

A. Yes, sir, assuming the volume of traffic was the same.

The Court: Can you tell in the last 12 months how much the two cent rate has stimulated business?

A. We do not believe it has stimulated it at all.

The Court: You have that in an exhibit?

A. We haven't that here today. We made quite an exhaustive study of that situation, and we will have that here later. We think we can show from some first hand figures that an increase in intrastate traffic, which has come about every time we charge a two cent rate in all these years—or even when we get down to 2½ cents which we did part of the time—in other words, whenever the intrastate rate has fallen below the level of the interstate, we have an increase of traffic in intrastate, but it has been at the expense of the interstate traffic. I believe we can show that.

Referring again to Exhibit 22, it might be well to say that on our total business in that year in the state of Arkansas, intrastate and interstate of every character, and based upon the original cost valuation, set up by our engineers, which is within 4% of the assessment—we earned only 4.8% on the entire business of the state.

The Court: The entire revenue of the state?

A. Yes, sir. In 1912, we earned on our entire business in the state of Arkansas 3.97%.

Mr. Moore: That is on the court rates?

A. Yes, sir, and on the 3 cent fare. That would have almost vanished had we been on the 2 cent rate and the Railroad Commission tariff.

173 In Exhibit 25, we have set up for 1911, in same detail as for the preceding years, earnings and expenses of all traffic in the state, separately.

We have to begin with, on the basis of the court tariff rates in this year, nothing available for a return on the value of the property devoted to the state freight business, but on the contrary a deficit of $37,022. That is, we did not earn enough gross by $37,000 odd to pay our taxes, rentals, hire of equipment and operating expenses. We do show in that year on intrastate passenger business, on the basis of the 3 cent fare a return of 5.32%, and on our total state traffic but 1.56% return. There was a deficit on freight. But during this year we were on a 2½ cent passenger basis, that is, from July 1 to November 26, 1910, and on a 3 cent basis from November 27, 1910, to the end of the fiscal year, June 30, 1911. Had we charged 2 cents per mile on the same volume of travel throughout the entire year, we would have had a deficit on the state passenger business of $12,000, and there would have been no return at all on our entire state business.

The total intrastate business yielded 3.28% on the basis of passenger rates higher than 2 cents per mile, varying from 2½ cents to 3 cents per mile, and on the court tariff rates.

In Exhibit 26 is shown in detail the same information as in the preceding exhibit, but it covers the year ended June 30, 1910. You will find in that year on the court tariff rates we had a return, but it was sixty-four one thousandths of one per cent on our freight

traffic. We have no return on our passenger traffic, but on the contrary a deficit of $700.00 on our intrastate traffic. And a return on our total intrastate business, freight and passenger, of 15/100 of one per cent. During that entire year we were on a 2½ cent
174 rate on our passenger traffic. If we had charged two cents per mile on the same volume of traffic we would have had a deficit of $79,971.00 on our state passenger traffic, and earnings on our state freight traffic of only $1,300, resulting from the application of the court tariff rates. If we had operated under Standard Distance Tariff No. 3, we would have had no return at all on state freight business. Our total business in Arkansas that year, on the basis of 2½ cents per mile and the court tariff rate, and the current interstate rates, yielded us 2.3%.

Now we come to Exhibit 27, which covers the four months ended December 31, 1907, and which the original bill in this case also covered.

During that year we charged the rates prescribed in the Railroad Commission's standard distance tariff No. 3, the one in controversy, and 2 cents per mile—that is, during the four months. In fact, during that entire fiscal year. The result was that we had nothing left as a return on the value of our property but a deficit of $16,500 on intrastate freight and a deficit of $18,488 on intrastate passenger traffic, and a deficit of $35,000 on the total intrastate business.

On our whole business within the state during those four months, state and interstate, freight and passenger, mail and express, on the valuation shown here, which was the original cost of the property, we stood possessed of at that time, the return is 1.48%; and that is on the basis of the rates fixed by the Railroad Commission and the two cents passenger fare.

175 The Court: How do you apportion the overhead expenses? Do you apportion them to the state first and then divide them between state and interstate?

A. The general principle is that overhead or supervisory expense shall follow the direct expense—that which is incurred in supervising the direct expense. I think that is well established and agreed upon by all accountants.

Q. Then you practically adopted the same basis as the court did in the Minnesota Case?

A. Yes, sir, exactly the same basis.

The suggestion has been made that the 2 cent rate would perhaps have stimulated travel. We made some tests, which it is perhaps not well to talk about now because we haven't the figures here, but they would show that such stimulation has been largely at the expense of the interstate traffic. We will have an exhibit on that later on.

Q. You mean a person will ride as near the state line as possible and buy his ticket and then ride to the next state and buy again?

A. Yes, sir. I might say that for an extended period we put our train auditors and collectors upon all trains crossing the borders of this state and made a detailed check of all passengers who bought tickets. We have their reports in detail, but not yet summarized. We do know from an examination of ticket sales at or near the

borders of the state, that the increased sale at those border stations has been out of proportion and largely so to the general increase in general ticket sales of intrastate tickets at interior points, or to the state as a whole. We have not those figures quite completed, but I believe they show that situation and we will make such an exhibit.

176 The Court: Suppose they offer to pay their fare on the train without buying a ticket at the station?

A. Then, of course, they are re-ticketed across the state line on the basis of a cash fare proposition, on the basis of the same rate. There in fact the auditor had more intimate control of it, because he was the man who issued the cash fare receipt. Coupled with that, it might be said, that when we are on a two cent basis, as a basing rate, it does not necessarily follow that we get two cents per mile. But we have assumed here that we did, and applied the two cent rate to all passenger miles intrastate.

Q. You did not get the three cents?

A. No, sir.

Q. The proportion is a little greater in the two cents than in the 3 cents—that is, you come nearer to getting the 2 cents than you do to getting the 3 cents?

A. Yes, sir, because the shrinkage is less in the first instance.

Q. It reduces to the minimum the excursion rates?

A. Yes, sir, and we do not get it for another reason, your Honor. In order to get a flat two cents per mile, there is a lot of competitive business in this state with *us*, we have got to be the short line, but we are not the short line except in a few instances. We could not realize 2 cents if we had a 2 cent basic rate, but we have assumed that we got 2 cents per mile, which is not the fact.

Q. One exhibit showed you made 1.08%, or something like that?

A. Yes, sir, we have figured on the assumption that we
177 got 2 cents instead of 3 cents, which is an over-assumption.

The Court: You counted everything, the children and excursions, and everything?

A. We took the passengers one mile and multiplied them by two cents. It is fair to state that so far as children are concerned they are half fares, and we counted them only as half passengers.

Q. And you took the long haul, and clergyman, etc.?

A. There is no clergy permit in this part of the world. We charge them flat rates.

178 Q. Mr. Hamilton, will you take up the "Maintenance of Way" account under the various headings, and state how that has been treated under the various primary accounts with which you deal in these exhibits?

A. Yes, sir. It is first necessary to determine the proportion of maintenance of way expense which was chargeable to line service and to terminal service, that is, the portions of expense incurred in keeping up track and structures and appurtenances which were used by the line service and which were used by the terminal service. To do that we had to get very close to the ground. In the months of November and December, 1913, we had our section foreman keep an

actual account of the entire labor and material expenditures. It was done in this way: We went out on the line, set down with each section foreman, took his time and material books (of which he renders one each month to the superintendent, who in turn reports to the auditor) and classified each track over which each individual section foreman had charge, according to its use as a line track or a terminal track, or common to line and terminal. If it was used exclusively for freight terminal service, we marked it as a freight terminal track. If it was used exclusively for line service we marked it as a line track, and all our straight line tracks are common to freight and passenger. We had him enter then on each track section, five or six miles, each day, a division of his labor and that of the men employed under him, and material used, as between these classes of
179 tracks. His time and material books were fitted to the tracks which he had in his charge. In other words, we made a hole for him to put his figures into, and numbered the tracks. If he worked on track one, he charged track one. We classified track one when we got his book, as a line track, or terminal, or freight or passenger. We accumulated in that way the actual maintenance of way expenses for these two months. It is sub-divided between freight and passenger tracks and line and terminal tracks. That also extends to the buildings, crossings and other matters that the section foreman keeps up.

As to the bridges, buildings and similar structures, we maintain regularly what we call structure reports in which the charges for the repairs or maintenance of each building, each individual building, or each individual bridge structure, are kept separately. That is a part of our regular accounting scheme. We had, then, without extra effort, the cost of repairs of individual buildings, bridges and trestles. It only remained to classify those according to their use as between line and terminal, and freight and passenger. That was the basis of our line and terminal, freight and passenger division, of maintenence of way expenses.

The Court:

Q. Then you apportion the expense of maintenance of right of way and structures according to the use?

A. The ordinary use, your Honor, for which the track or structure was provided by the Company.

Q. If there was a washout, or if the platform rotted and had to be replaced, then it was apportioned according to the use
180 by the different trains?

A. Yes, sir; if it was a freight platform it was charged to the freight terminal.

Q. I understand, but I mean intrastate and interstate.

Q. That is another subject, if your Honor please.

Q. I thought you had——

A. No, just as to the freight and passenger, line and terminal use.

Q. Of course, that is immaterial—that is a detail.

A. The freight facilities are used in common by the state and the interstate business. By the "facilities" I mean the way and struc-

tures. They are used in common by the state and interstate traffic. The state and interstate traffic travels cheek and jowl on the local trains and on the through trains, so it became necessary to make an apportionment of the freight facilities between the local and the through trains.

Preceding that (and I overlooked that) we had the great main line of the railroad between states, which was used in common by freight and passenger service. We had to divide that common track between freight and passenger to start with. I got a step ahead of my story in taking up the freight division. We did that on the basis of engine ton miles, so-called; that is, we took the engines which actually hauled passenger trains and the miles they ran, and we multiplied the miles made by each engine drawing the passenger train by the dead weight, the total dead weight of that engine, making an allowance for the contents of the engine tank or tender estimated at two-thirds of its carrying capacity in water and coal. That is,
181 we took the weight of the engine complete, in running order, everything above the rails, and multiplied it by the mileage the engine made, freight and passenger, each engine separately, building up the freight and passenger engine ton miles. We did that for the reason that the question of the division of maintenance and way expense, particularly the straight main line maintenance, has always been one subject of much discussion and heretofore has been divided on the basis of the revenue train miles on the theory that the extra speed of the passenger train compensated in the use it made of the track for the extra weight of the freight train. Then it has ben contended, or it has been stated, that only a minor portion, varying from twenty-five to ten per cent, of the actual up-keep expenses of the track is directly traceable and chargeable to the wear and tear occasioned by running trains over it.

The Court:

Q. What per cent?

A. It has varied from ten per cent to twenty-five per cent—I think it is here in the former records in these cases—and that the other ninety per cent to seventy-five per cent of maintenance was the result of elemental action, the erosion of the bank, rotting of ties, deterioration of rails, deterioration of fences, buildings, etc., and that would go on if you never ran a train over a track, to a large extent.

We felt, then, that the best basis on which to divide maintenance of way, and one that would reflect a proper division both of
182 that portion which is chargeable to the direct wear and tear by reason of the running of trains, and that portion which would accrue if you ran no trains, would be some unit that would really measure the use we got out of the track in freight and passenger service. There was only, so far as we could see, one common ground on which the freight and passenger service could meet, and that was the engine ton miles, and for this reason: The weight of your engine denotes not only its type, but the size and character of the train that you expect it to haul. It is conditioned to the service required of it.

I made some notes, your Honor, of further facts. I want to get at them, if your Honor please.

The Court: Use them to refresh your memory.

The Witness: The train behind your passenger engines consists of fewer cars than the train behind your freight engine, but your passenger engine is required to run, necessarily, at a greater speed. Your freight engine is required to pull a heavier train at a slower speed. It seems to us that the size of the engine being conditioned to the speed and weight combined, and expected to be met with in your freight and passenger trains, respectively, really was the best common unit of measurement of the use that you got out of your track as between freight and passenger service, because you use your track to pull trains of varying weights, at varying speeds, the locomotives in the freight and passenger service being accommodated as to
183 the speed and the tonnage that you must handle.

Mr. Moore:

Q. One moment here: Does the size of the engine denote both the speed and the extent of the load?

A. I thought I had said so, I intended to.

Q. No, you did not make it clear.

A. Yes, the engine is conditioned to the size.

Q. The speed of your train, that is what I wanted to get in, the speed.

A. In the Iron Mountain Case, as I recall it, the suggestion was offered that a local freight train was the fastest train on the railroad between stations, that it ran much faster than the through freight, and that there ought, perhaps, to be some distinction made by reason of that. It occurred to me that that might be suggested in connection with this engine ton mile.

It may be interesting to note that we made a time study of our local freight train speeds, our through freight train speeds and our passenger train speeds, actual elapsed running time between stations, for every train in this state, for two months, every day, and we found that the local train and the through freight train speed were within just a fraction of a mile of one another, and that the passenger ran about twice as fast as the freight.

The Court:

Q. You mean the local freight makes as good time?

A. When it is running between stations, using the main line track between stations, which is the line service I had in mind.

Q. I thought you meant the entire trip?

184 A. No, sir. We have covered station services in another way, when it has been at the station the local has been a switch engine with us or a freight unloader. I thought that was worth mentioning because there might be some objection——

Q. Another thing was brought out: It was claimed that the locomotives furnished for use in local traffic are not equal to those used in the through business; that is, as a rule they are old and are not

fit to be used on the through business, and for that reason put on the local passenger, as well as freight.

A. That is a pretty good theory, your Honor; it was good at the time, perhaps. It is not so as a matter of actual railroad practice.

Q. What is it on this road?

A. It is not on this road. I can say that of my own knowledge, first hand, for this reason: Service exacted of a local freight train engine (I ride a good many local freight trains nowadays in the ordinary pursuit of my business) is very exacting. We have got just as good engines on our local freights in this state as we have on a good many of our passenger trains and our through freight trains; not as large an engine, if you please——

Q. What do you do when the engines get old and they are too good to be thrown away, and yet they cannot be used for freight traffic or passenger traffic?

A. We made switch engines out of some of them; some we sell, and when they get so they are too old for that we scrap them and dismantle them, but the local train engine is not as large an engine, in every instance, as the engine that pulls a through freight
185 train, and right there is where the engine ton mile apportions to the local train its proper proportion of the maintenance of way expense, because it has a lighter engine, it gets a lighter ton mileage. I am speaking of line expenses, pure and simple.

The line expense, then, having been divided between freight and passenger service, that is, the common items, on the engine ton mile basis, we had what is shown to be in these exhibits the maintenance of way expenses, line and terminal, separately, and freight and passenger, separately, and we proceeded to the division of the line freight expenses between the local and through trains on the basis of the entire consist of the train from the pilot of the engine to the rear platform caboose; that is, the total weight in that train unit using the rails, using the track, and in its underlying structure. We figured that was what was moved over the track, and that represented the use made of the track as between the two classes of freight trains. We divided the local train proportion of that maintenance of way expense, after attaching it on the gross ton mile basis, on the basis of the net ton miles, state and interstate freight, which were carried in that train, by reason of moving that gross weight over the rails, and we followed the same process for the through train and so got our division of freight maintenance of way expense between state and interstate, for the line proportion.

186 The freight terminal expense of maintenance of way we divided between intrastate and interstate, and that is set forth in detail in Exhibit No. 15, on a variety of bases. We divided the straight track labor, ballast, ties, rails, fastenings and the up-keep of the terminal tracks, which we had determined from the section foremen's time books, on the basis of the total number of gross tons, cars and contents, handled on terminal tracks. That is what you maintain your tracks for at terminals, to handle cars on.

We divided the maintenance of buildings, fixtures and grounds,

first, between station buildings, and second, between other buildings. The station buildings freight proportion were divided on a basis of less-than-carload net tons received at and delivered at stations, the actual tons that used the station. Other buildings, which represent largely transportation buildings, were divided on a basis of all net tons of freight received and delivered at stations in the state, carload and less-than-carload.

That covers the track, the first explanation, the cars and tons handled, covers the use of track and buildings. The superintendence and overhead expenses followed the apportionment of direct expenses. That is the method followed in dividing maintenance of way expenses carried through to the end of the freight branch, as contrasted, as divided between freight and passenger, with the former method on basis of revenue train miles and then between local and through trains, all in a lump, with no allowance for
187 terminal services, on a basis of car miles. Here we first segregate the terminal facilities according to their actual use. We apportion those on a basis of terminal functions, terminal handlings. That is one of them. Then we apportion the line expense on the basis of gross tonnage carried over it. It seems to us that much more nearly reflects the use made by local and through trains than the car basis did, because your car may be lightly loaded in the local and heavily in the through, and vice versa. Here if it is lightly loaded we have only the light gross tons and if it is heavily loaded we have the heavy gross tons, and it is the actual movement of each train. There is no conjecture. Then, having got the cost attaching to each train, of course it fairly attaches itself to the contents of the train as to its proportion between state and interstate, the distance and the ton miles. We think that is as clear a contrast as we can make between the old and the new method.

Mr. Moore:

Q. Make some explanation now, Mr. Hamilton, of the manner of ascertaining and apportioning station expenses.

A. In the Iron Mountain Case and the Cotton Belt Case the railroads had made a division of all expenses between freight and passenger service, which was accepted by the state, and the record so states. In making that division they had divided their station expenses, where the stations were used in common, by the freight and passenger service, on a basis of the superintendent's esti-
188 mate of the usual use of each station. The auditor kept that in his record.

In order to get closer to actualities, in preparing these exhibits we have adopted what we think is an infinitely superior method. During the two months, November and December, 1913, we had every station agent within this state made a study and keep a record daily of the time which he and each of his employes devoted to freight service, to passenger service, to the handling of mail and express, and to telegraph service; to keep a record and to report it to us at the end of the month, for purposes of this test of division of time, an actual time tally. The wages of that station agent and his employes were

divided on the basis of the time devoted to freight and passenger, etc., by each employe, or particular class of employes, engaged in the same nature of work, so that we got instead of the superintendent's estimate a real time study, made at first hand by the man in charge of the station. We sent out one of the best men we had to instruct our agents. We had them together at central points and instructed them. We reviewed their reports when they were received, and we had their signed statements as to the accuracy of the divisions they made. They have been turned over, or are available for examination by the state's accountants.

We had the actual use, then, of the station force made by freight and passenger service. We had the agent report also the number of consignments of state and interstate freight, the number of shipments which he received and forwarded during these two months.

189 The agent's report, which is Exhibit No. 2-K, shows that he was required to report separately his several clerks and their time charged to freight. Those freight clerks were engaged in the handling, recording, way-billing and expensing of those consignments of freight, and their salaries and wages were divided between state and interstate in accordance with the number of consignments of state and interstate freight received and delivered at each individual station treated by itself. That measures the clerical work, the number of consignments received and forwarded, the number of entries on the books. The warehouse force is shown here separately, the men who work there. They are divided on the basis of the number of tons of less-than-carload freight only, state and interstate, received at and forwarded from that particular station, and so on.

We went into minute detail in that way instead of simply dividing the total station expense in the state arbitrarily assigned to freight and passenger by the superintendent at periodical intervals, and on the basis of the number of tons handled in the whole state broadcast multiplied by two for state and treated singly for interstate, as was done in the other cases. In other words, we localized the actual cost and performance, state and interstate, at each station, and it occurs to us that that disposes of the long drawn out controversy that was had heretofore as to what occurred to trans-state freight. If the trans-state ton was trucked across the platform station, even being transferred from car to car, the agent was instructed to

190 take credit for that ton as being handled, and for that reason we have made no separation between interstate and trans-state in this study. It is classified as interstate. If it got handled the agent was instructed to charge it with the handling; if it did not get handled he had no record of it. It passed his station. I think that clears that up.

191 Cross-examination.

By Mr. Hill:

Q. Mr. Hamilton, I wish you would explain that time study proposition a little more fully.

A. You mean the station time study, Judge Hill?

Q. Yes, take that as an illustration. I think you have that time study proposition in a good many of your propositions there, have you not?

A. Yes, we have.

Q. Take your station time study.

A. It is Exhibit No. 2. I am looking for the page. I have the copy here. (After examining exhibit) Yes, it is on page 9, and is described there.

Q. Of Exhibit No. 2 or No. 3?

A. Exhibit No. 2, yes, sir.

Q. Or Exhibit 2-A?

A. Exhibit No. 2, and the form of report and instructions to the agents, which are referred to here in Exhibit No. 2, will be found as Exhibit No. 2-K. I don't know that I can answer your question better than to read the instructions on the back of the stations agent's report.

Q. That is Exhibit No. 2-K?

A. Yes, sir. I would like to say in explanation that this test was conducted right along with the test in Oklahoma and these forms were used jointly, many of our divisions crossing the state line, and the reference to Oklahoma here will be explained in that way: (Reading instructions on back of report)

192 "Agents will keep record for the months of November and December, 1913, of the time of each employe or class of employes (in accordance with classification shown on face of this blank) devoted to the various classes of services indicated by the headings on the face of this blank."

The face of the blank shows the classification: There is freight, passenger, express, U. S. Mail and Telegraph. Then you will notice down the side a list of the various classes of employes—the agent and assistant, his chief clerk, cashier and assistant, accounting, freight clerks, warehouse foremen, warehouse men, and so on; and where he had some employes who did not fall within any of those usual categories we had him specify that at the bottom there (indicating on Exhibit 2-K).

The instructions read on in this way:

"Number of employes and total wages of each employe or class of employes must be shown in the columns provided and the wages so shown must be distributed between the various classes of service on basis of time devoted on each."

There is the keynote of the whole thing.

Q. Right there in the class of service: What classes of service are you referring to there?

A. Freight, passenger, mail, express and telegraph.

Q. Did you take in state or interstate in that time study?

A. No, sir, that is another phase of the same report. If you will take, for instance, let us assume it is a little one man station; that is the best illustration we can get: He will show himself on the first line as the agent. He is the entire help of the Company
193 there. We will say he kept a record of his time and he found fifty per cent of it went to freight, twenty-five per cent to passenger and twenty-five per cent to telegraph, U. S. mail and express.

Q. He just makes a time study of himself?

A. Yes, sir.

Q. He sits up there and analyzes himself and finds out how much time he puts in on freight——

A. Yes, sir, that is it exactly.

Q. —and passenger and on telegraph?

A. That is it, sir.

Q. He is holding a self-communion?

A. Yes; and if he has employes——

Q. He divides himself up by this time study process into these various classes?

A. Yes, sir, that is it.

Q. When he gets through with his time study of himself and these various classes, don't he take up another time study between state and interstate?

A. No, sir, that comes in another phase.

Q. Let us see how he time studies himself on state and interstate.

A. We did it for him; he furnished us the information.

Q. You made these time studies?

A. No, sir, I mean we made the division between state and interstate.

Q. How did you get the time study on that?

A. I was just coming to that, if you please. Let us assume that this man found a certain proportion of his time was chargeable to freight service, expressed in hours and minutes, or propor-
194 tions as he determined them, in hours and minutes: He divided his wages, the actual wages, on that basis between freight and passenger, and, let us say, telegraph; and he had on this report the freight expenses on the basis of the time devoted to freight service. Other station expenses are treated here, too, but just taking that as a type, taking the wages: It became necessary, then, to apportion him, or his freight time, the cost of his freight time, between state and interstate. Down here he shows the tons of freight received and forwarded, carload and less-than-carload, and transferred from car to car, and we divided him on that basis, the tonnage that he handled and accounted for, way-billed and expense-billed, state and interstate. That is the freight time.

Q. What did you do with his passenger time?

A. On the basis of the number of passengers who got off trains or got on trains at his station.

Q. Let us illustrate that a little bit: I was out at Oklahoma City not long ago and I bought a ticket on the Kansas City Southern from Fort Smith to Oklahoma City and I changed cars at Howe. I

had to wait there a couple of hours. I went in and pestered the agent two or three times about the time the train would be due, when the next one would come along, and got all the information I could. I sat around the station and I used the drinking water like any other passenger, and was treated very nicely: What sort of a time study would I figure in, likely?

A. You were moving entirely within the state?

195 Q. No, I was moving from Fort Smith to Oklahoma City.

*Q.* You would not figure at all.

Q. I got all that free?

A. Yes, sir, so far as that agent is concerned. If there were no passengers——

Q. As far as that station was concerned there was no charge entered for me at all?

A. No, sir, because we did not keep that agent there to handle you. He was there to handle traffic that originated and terminated at that station and we employed him to do that.

Q. You don't keep that agent there to handle the passengers that are transferred to that station from some other station?

A. No, sir.

Q. That is an element that will be entirely ignored?

A Yes, sir.

Q. And all this travel that went through Howe, using that as an illustration, when changing from the Kansas City Southern to the Rock Island at that place would be no—have no share of that expense and that use of the station?

A. Yes, sir.

Q. And I would not enter into the time study of that lady who was answering my questions?

A. Not on the basis of this agent's report.

Q. Is that correct, Mr. Hamilton?

A. Not on the basis of this agent's report.

Q. Would it be on any other report?

A. I beg your pardon, Judge Hill. I thought you were asking if the agent would report you. He would not.

196 Q. I am asking now if that service I got entered into this time study?

A. Oh, yes, but not by the agent——

Q. Why does it not?

A. —I misunderstood you. I did not mean to mislead you. The agent couldn't catch that class of passengers so we had to get at it in another way.

Q. I want to know how you got me at Howe.

A. In this way: Let us assume the line from Howe to Oklahoma was the Frisco Railroad and you came on our roads——

Q. That is not a fact: I am assuming I came on another road, from a foreign road.

*Q.* I am taking an illustration. I don't know what the Rock Island did in that instance.

Q. I want to know your system where you receive a passenger on your line that comes from another line.

A. Let me give you an actual illustration, if I may: Assume you came from the Midland Valley at Fort Smith and you went on our line to Fayetteville; you had a through ticket, or a coupon, which was good on the Frisco: You wanted to know how we would get a charge against you for the use of our station at Fort Smith——

Q. Yes.

A. You got on our train at Fort Smith and you proffered a ticket to our conductor, and we entered you on our train sheets, in making our passenger mile statistics, as one passenger getting on at Fort Smith, and we counted all the passengers that got on at Forth Smith whether they went near the ticket agent or not.

Q. Would that be handled as line or terminal?

197 A. That is a terminal service to you.

Q. Would that not be true of my service down here at Howe if I got on there with a through ticket from Fort Smith to Oklahoma City?

A. I presume it would, but I cannot answer for the Rock Island practice. I took the practice on our own line.

Q. You took up from your conductor the fact that the passenger got on at that place?

A. Yes, and where every passenger came from in the first instance, and where he was going to ultimately.

Q. You charge up a terminal charge, there is a terminal charge put up against him at that point?

A. Yes, sir.

Q. Just the same as if he originated at that point?

A. Yes, sir.

Q. There would be no difference in the charge there——

A. No, sir, none whatever, sir.

Q. And no difference in the expense?

A. No, sir, except the mere selling of the ticket. He would get all the conveniences of the station except the purchase of the ticket.

Q. There would be no difference, then, between the expenses charged to a passenger transferred from another line, and what originated at a given station?

A. No, sir, we charged him just as much; we counted him one passenger. You might——

Q. In the sale of the ticket and the time of the agent selling

198 the ticket, he is not counted if he travels through?

A. No, sir.

Q. That is ignored?

A. Yes, sir.

Q. That is negligible? That is the term we used to use.

A. Yes, because he is in the same category with the man who got on with a mileage book and the agent never could get any track of him because he never went near the agent.

Q. What is the difference in the time study?

A. We do not get to that. We got the passenger proportion from the agent's time, the agent's time study, but we did not divide anything between state and interstate on the report of time because he couldn't catch such passengers as you speak of.

Q. Then your time study is not complete?

A. It is complete, perfectly so.

Q. It is not complete on this class of travel that comes in on another line.

A. The time study was the division of wages and the cost of operating the station, as between freight and passenger. This subdivision was not a time study but was a tally of the traffic.

Q. Is not the number of passengers that go in and use the station an element to be considered in the time study problem?

A. That is not a time study, Judge Hill. The time study was made by the agent as to what he did with his time, and we divided his expenses on that basis.

Q. His work between passenger and freight was part of his time study, wasn't it?

A. Yes, sir.

199 Q. The whole number of passengers he has to answer questions to, and sell tickets to, and serves, is that much more time study on the passenger, isn't it?

A. Yes, and we assume that he has reported to us all the time he devoted to passenger service.

Q. But here is a class of passengers he does not get a time study on?

A. I see your point now. If they did not go near him he would not apportion any charge to them.

Q. If they did not go——

A. If they did not go to him, yes—of course, this must be remembered——

Q. I will carry that illustration a step further: I made a second trip out there and they would not sell me a through ticket the next time, so I bought a ticket to Howe, Fort Smith to Howe, and then I bought a ticket from Howe to Oklahoma City, and I went through the same performance down there; the lady answered my questions the same, was very polite and nice to me, and they got me in on the time study that time because I bought a ticket there at the station?

A. Yes, sir.

Q. But the service would be exactly alike; I pestered her just as much one time as the other, and yet you would catch me on the time service one time and would not catch me the other time?

A. I believe I can solve your problem, Judge Hill, if I read a little further in these instructions. I see exactly what you have in mind. The agent did not keep track, or if he did we did not

200 expect him to, of every minute that every passenger took?

Q. No, he took it as a whole, of course. I understand that.

A. We don't sell tickets in that way, but a man goes at a small station, this small station I am talking about, to the window, thirty minutes before train time, and he stays there until that train leaves, and he sells tickets during that time, and maybe he makes up reports or does some other thing that occurs to him, but he is there to sell tickets, and we charge that thirty minutes, or he was told to charge it, to passenger service. The fact that you did not go near

him on one journey, or did go to him on another did not lengthen his stay at that window for a minute.

Q. No, I was there two and one-half hours, Mr. Hamilton——

A. Then he was busy making——

Q. —the thirty minute illustration won't do here.

A. He did not stay at the ticket window.

Q. Use of station: That is one of your time study problems, the use of the station?

A. No, the number of passengers, Judge, if we get——

Q. Use of the water, and in cold weather the heat, and so on?

A. Yes, sir.

Q. All of those enter into the element?

A. Yes, sir.

Q. Take that thirty minute proposition——

A. I wanted to follow that. The instructions say here:

"Special conditions which obtain at various stations must be properly handled so as to charge the proper proportion of the wage cost at each station to the various classes of service shown. As
201 an illustration, if a ticket agent is on duty in the ticket office for say thirty minutes prior to arrival of trains for the purpose of selling tickets, his time during that thirty minutes must be charged to passenger, even though he is engaged in making out freight reports while waiting to sell tickets."

If a man went to him to buy a ticket he would come in on that thirty minutes' time. If he just came around and used the station; our rules require the clerk to stay there a certain length of time on passenger business, and if he left the ticket window, happened to leave the——

Q. In that thirty minutes you treated the tickets just like state and interstate, you just take the number of tickets that were sold there?

A. The number of passengers who were in and out of the station.

Q. That would be the number of tickets sold, that is the way you got at it?

A. I concede it might take a little longer to sell a man a coupon ticket in interstate travel than a ticket in state.

Q. A great deal?

A. I am not qualified to answer that; that depends.

Q. You know that as a matter of fact, and that if a man goes in there to buy a local ticket for the next station twenty or thirty miles away they have it prepared and sell it to him and give him his change?

A. Yes, sir.

Q. And if he goes in there to buy a long interstate ticket across into another state it takes very much longer?

A. Yes, sir.

Q. That is not a fair apportionment, to treat those equally,
202 is it?

A. Well, it is just as close to actual facts as we knew how to get.

'Q. That is not answering my question, Mr. Hamilton. That is not a fair apportionment to put those on an equality, is it, Mr. Hamilton?

A. I think it is, yes, sir, as far as we could get to it.

Q. Notwithstanding the state man takes very little time and the interstate takes several times as long, you think it is fair?

A. Well, it is a question of what you mean by the definition of the use of a station. It really is a matter of small import when you get down to the last analysis, for this reason: That you will find the terminal passenger expenses in Arkansas on the Frisco, after you get your mail and express out, for the two months, November and December, we charged just twice as much, it so happened, to the state passenger as we have to interstate, and the whole amount involved is just $30,000.

Q. That does not answer the question, whether it is a small or big amount, does it?

A. I can only answer it by saying we could not get to the proposition of having the agent keep track of the time it took him to sell each ticket, and we went as close to it as we could. I am not certain——

Q. You cannot contend that this is a fair division between state and interstate tickets on that?

A. We thought it was, yes, sir.

Q. What is that?

A. We though it was, on the whole, yes, sir.

203 Q. On the whole?

A. Yes, sir.

Q. Suppose there was freight that was being transferred from a foreign line onto your line or from your line onto a foreign line, take Mansfield: You have a junction point at the Rock Island, you have a car going from Fort Smith onto the Rock Island line, and you want to time-study that car out of that station.

A. We did not time-study any tonnage.

Q. What is that?

A. We did not make any time study of any tonnage; we counted the tons.

Q. Don't you time-study out that car on the division between freight and passenger?

A. No, sir, we had the agent report the time that he devoted to freight and we apportion that, ton for ton, between state and interstate traffic, just like we did the passenger.

Q. How many cars of freight and how much L. C. L. freight came that was handled at his station?

A. Yes, sir.

Q. Isn't that time study, whether you take it as one car or as a whole proposition?

A. I consider it not a time study but a tally count.

Q. A tonnage count?

A. Yes, sir.

Q. I think you said he divided his time by setting it out between freight and passenger——

A. Yes, that is true.

Q. I want to know how he divided his time in this particular shipment that came in; say there were other employes in the station.

A. Yes, sir.

Q. We will get away from a station where there is just one employe; take Mansfield where there are quite a number: How
204 do you divide that and make that time study out between freight and passenger?

A. We assume that he had clerks and warehouse men. A certain portion of his clerks' time or, perhaps, of the time of one clerk, as is often the case, would be devoted to freight. Then he has a trucker in his warehouse and, perhaps, all or a certain portion of his time, determined by the time study, would be devoted to freight. There are two distinct functions. There is the clerk and the warehouse man. We did not divide those in a lump on the basis of the tonnage. We considered the function they had each performed. You will find on Exhibit No. 2-K that we required the agent to report the number of consignments of state and interstate freight. We divided the clerks' time between state and interstate on the number of consignments which had to be way-billed, or expensed, or recorded, or passed through the station accounts, even though they were transferred from car to car on a through billing; that is, the clerks' time was divided on the basis of the clerical work, the number of consignments of state and interstate freight, and the warehouse men, on the basis of the less-than-carload tons, state and interstate.

Q. I understand that; I wanted it split up between passenger and freight.

A. The warehouse man would not be charged to the passenger at all.

Q. Down at Mansfield they have a fine looking negro man who has been there for years, and he is a good negro, too. He
205 just does everything, he is handling express and mail, boxes and baggage, etc., in the warehouse; how are you going to time-study him out?

A. I would have to ask the agent at Mansfield, who was instructed how to do it.

Q. You have the agent at Mansfield to time-study this man out?

A. If he employs him——

Q. And divide his wages up between mail and express?

A. That is it, sir.

Q. The agent at Mansfield time-studies the negro's services——

A. Yes, we have the signed statement of the agent that he has reported a correct statement to us.

Q. As a matter of curiosity I would like sometime to see how that negro's time-study is figured out.

A. Mr. Oliver has the report; he can show you.

Q. In how many different places have you used the time-study proposition in these exhibits?

A. In station service, which we have been discussing; in yard service and in train service.

Q. Station, yard and train service?

A. Yes, sir.

Q. How do you time-study that for the yard?

A. You will find Exhibit No. 2-I, which is the form of report rendered by the foreman of the switch engines in our yards in Arkansas. We got those reports for this same test period, two months. It is a card form, Judge Hill.

Q. All right, I have it.

206 A. You will recall that in the Iron Mountain Case, in dividing between freight and passenger service, the railroads assumed that ninety-five per cent of yard costs were properly chargeable to freight and five per cent to passenger. They were not very far wrong. When we got through with this study it was very close to ninety-five per cent and five per cent, but we had to go further than that. It was not only a question of how much was freight and passenger in the yard, but how much was line and terminal service. Heretofore all yard expense was doubled up on the poor state ton and state passenger. He was charged twice for a yard and a station service whether he got it or not. That has not happened to him in these exhibits. He has been relieved of a great deal of terminal yard expense that has gone out on the line where the interstate could get its share of it, without having the multiple of two to one on a tonnage basis.

We had the engine foreman on each switch engine fill out this report form, which you will notice in the left-hand margin is divided into half hour periods for the entire twenty-four hours, and then across the top it carries columns denoting various classes of service. We will come back to that in a minute, if we may. On the reverse side of the report the instructions to the man on the engine and the foreman in charge of it, are as follows:

"Place an 'X' in the column showing work you perform during each half hour crew is on duty.

If crew is kept waiting to perform any particular work such as waiting to switch a passenger train, or ice a freight train, such work

207 should be charged to passenger or to freight service as the case may be." That is, if you have a switch engine on the spot for an hour waiting to switch a passenger train that is coming in, you charge that whole hour to passenger even though he is not doing anything; or, if he is standing there waiting to take hold of a red ball train, perishable freight, to ice it, all the time he is waiting for that freight train he is waiting for freight and is charged to freight service. That is the principle that underlies it.

On the face of the sheet you will notice the classification of the time used in "making up and breaking up trains." That is a line service. "Handling cars for icing:" That is a terminal service. "Handling cars for loading and unloading at your service——"

Mr. Moore: You mean, "At your station."

The Witness: Pardon me, I made a mis-statement: I should have said "Handling cars for icing" is line, not terminal. "Handling cars for loading and unloading at your station:" That is a termi-

nal service. "Switching cars to and from connecting lines:" Again, a terminal service.

Mr. Hill:

Q. The general idea is that you have the switch engine foreman split up his time in half hour periods?

A. Between line and terminal, and freight and passenger.

Q. And then you decide what is line and terminal in this report, and classify it accordingly?

A. In accordance with the formula which we have filed as Exhibit No. 1, yes, sir. That was a straight time study. Each
208 yard is treated separately, the expenses of each yard allocated separately, and they are divided on the basis of these per cents, or per cents resulting from this so-called time-study.

Q. You time-study the trains?

A. Yes, sir.

Q. How do you work that out?

A. You will find in this same group of exhibits that you have there a report—I will come to the number in just a minute.

Q. Exhibit No. 2-K, I suppose?

A. Exhibit No. 2-H. That is a report of train stops and terminal delays, so-called. To begin with, it shows the number of the train, the time that it left a given point, the time it departed from the terminal, the date, the class of train—that is, freight or passenger, local or through, or mixed, and the time that it arrived at the end of its run. That gave us the total time which that train was upon the road.

Q. Have you both freight and passenger?

A. A separate report for each train, yes, sir; all classes of trains. You will notice that the class is provided for there at the left-hand heading, at the top there (indicating): The conductor was required to note every time his train stopped, the time that the train stopped and the time that it departed from that place. It also showed the total elapsed time of that stop in hours and minutes. Then he was required to show the time that train stopped on account of train operation; that is, the time consumed in taking fuel, water, meeting
209 another train, getting orders, knocking the fire, cooling a hot-box, or anything of that kind. That was purely an incident of moving the train over the line.

Q. You had your conductors make out that report of every stop——

A. Yes, sir. There is some more of it.

Q. —incident to that trip, setting out his time on it and put it down, and you worked it out?

A. Yes, sir. There is more of that to be explained, if you please: What I spoke of was the line portion of the time. The balance of the time, as stated here, are station services. He was required to report separately every time he stopped, how long he was required to stand still or to be at that station, either switching or unloading freight or passengers, or mail or express, as the case might be. That

is the terminal service of the train. As you see, we had the conductor report to us and we worked up the results of his report.

Q. You assume, when you go back to 1907, that all of these time-studies, if they had been developed then, would have produced the same result exactly, that every train would have stopped for water the same length of time; that every train would have stopped for coal the same length of time, and stopped for these various causes set forth here, in 1907, as they did in the last two months of 1913?

A. We are assuming, perhaps to answer it in another way, that the operating practice of the railroad in these general rudimentary every day railroad occurrences, has not changed in that time and that the results would be practically the same.

Q. You make all of these stops that are called for for delays in this train, for this and that, for that and the other, and
210 the number of trains, and all of that, and assume they would all be the same thing.

A. No, sir, we don't assume that in total. We do assume it in this way: That the proportion of time devoted by each class of train to line service and terminal service would not vary in its relation to the total time of the train upon the road sufficiently to vitiate the results we got, because our operating practice has not changed.

Q. This calls for time of stop altogether on train operation?

A. Yes, sir.

Q. The total elapsed time to stop?

A. Yes, sir.

Q. And then calls for station stops?

A. Yes, sir.

Q. Terminal delays and switching delays?

A. That is before leaving or after arriving at the home terminal.

Q. Stops for water would be included, I suppose?

A. No, sir, that is in the train stop, time of train operation.

Q. Waiting for other trains, that is included?

A. Yes, waiting for orders.

Q. The general proposition is they worked just the same in these last two months of 1913, as they did in the four months of 1907?

A. Yes, sir, it takes no longer to take a tank of water now than it did five years ago.

Q. Same trains running on the road——

A. Practically the same, yes——

Q. —and the same conditions of track?

A. Yes, sir.

211 Q. The same conditions of travel?

A. Yes, sir.

Q. And the same kind of men running them?

A. The same dispatchers running the trains, a good many of them.

Q. And the same negro down there at Mansfield dividing the time up between freight and passenger, and mail and express?

A. As a general proposition, Judge Hill, our operating practices and conditions are similar now to what they were seven or eight years ago, as to train operation.

Q. Does this time study enter into any other except these three matters that you now referred to?

A. I don't recall that it does. We got something that is pretty closely akin to it, but it is not exactly the same.

Q. What is akin to it?

A. We have a report of the towerman in here, trains crossing interlockers.

Q. You have not enough of those to count? Where is your property report?

A. Sir?

Q. Which exhibit is your property valuation?

A. Exhibit No. 18, Judge Hill. That is for the year 1913, and then it runs in No. 24, No. 25, No. 26 and No. 27 for other years.

Mr. Moore:

Q. That is only the apportionment of the property value?

A. The detail is there.

Mr. Hill:

Q. I want to get at that ultimately. This exhibit No. 18 gives a list of the property in Arkansas, and the value, as determined by your chief engineer?

A. Yes, sir.

212 Q. Does that include your rolling stock in this exhibit—where is that on?

A. No, sir; the first sheet only takes in roadway and structures. The rolling stock begins on page 2.

Q. That is what I thought. This first sheet, the physical properties, is the opinion of your engineer; that is the truth about that?

A. I much prefer to have Mr. Jonah tell how he got the values.

Q. I understand that it is a question with him, but I want to know how—an explanation of what this table is: That is supposed to be the true values as determined by your chief engineer?

A. Yes, as furnished by him. Pardon me, the classification of various classes of property between various service is also the engineer's.

Q. I understand that. Then the next thing you take up is the rolling stock?

A. Yes, sir.

Q. Where is your total of rolling stock of the whole system?

A. It is in there piecemeal. For instance, on——

Q. I think you have one table here where you have it all brought down together, have you not?

A. No, sir. "Locomotives"—beginning on the bottom of page 2 you will find a reference to what it says there about the value mileage made in Arkansas, etc.

Q. I understand, but I don't want to go into that value now.

A. If you will follow that paragraph you will find it, Judge Hill.

213 Q. You have what you call the book value of your locomotives and freight cars and passenger cars?

A. The cost of acquisition by this Company.

Q. What is the book value?

A. The original cost of acquisition of the piece of equipment.

Q. If this engine was twenty years old you are carrying it in here at the original cost price?

A. Yes, sir, and if it was twenty years old there would not be a piece of the original engine in it. We maintain them a hundred per cent. The judgment of our officers is that the depreciation on our motive power is, as you have phrased it, a "negligible" quantity.

Q. Is what?

A. A negligible quantity. We are keeping them up to standard.

Q. Then a locomotive twenty years old which cost you $10,000 twenty years ago you are carrying at $10,000 now?

A. Yes, sir; the only element of depreciation that there could be in that engine, if she is fit for service at all, is the one of obsolescence, but as to her being twenty years old, if she is at work on the railroad there is not a piece of the original engine in there except, possibly, one or two of the parts of her frame.

Q. Repairs and replacements that have been made upon it from time to time have been charged up to operating expenses, have they not?

A. Yes, sir, and kept up to the standard, so that really has swallowed the depreciation up into operating expenses.

Q. What is that?

214 A. Yes, sir, and kept up to the standard, so that really has swallowed the depreciation up into operating expenses.

Q. Take your freight cars: They are worth one hundred cents on the dollar now, no matter how long they have been running?

A. For purposes of use, yes, sir.

Q. We are not talking about the purposes of use, we are talking about the fair value. That is the way you treat them here?

A. I made that assumption. I must prefer that you would ask our mechanical engineer those questions.

Q. I am trying to find out now what you have here.

A. That is the assumption, yes, sir; that is the original cost value.

Q. You assume that every freight car, every locomotive and every passenger car is worth just as much as it cost you?

A. Yes, sir.

Q. And that is the way you make up these values in these exhibits?

A. Yes, sir.

Q. These total values in the exhibits here show about $7,000,000 more than double your assessed property in Arkansas?

A. For 1913?

Q. I did not attempt 1913. I was going on 1907.

A. No, sir, just about $1,000,000 more in this year.

Q. I haven't got to 1913, but you take your values as shown here, and I presume that they would be the same in 1907, wouldn't they?

A. No, sir.

Q. What is the difference?

A. We have deducted all additions and betterments, year by year.

215 The Court: The assessment has been raised about $5000 a mile.

Mr. Hill: I am not speaking of the assessment, I am speaking of his values here. I did not look at the assessment for this last year, because I do not think it makes any difference in this at all. The assessment for 1907 that we have before us is——

The Witness: About $16,000,000, Judge Hill.

Q. Double that brings $16,000,000?

A. That is what I meant, yes, sir.

Q. And you made your calculations of it, if I have it correctly, about $22,000,000?

A. That is about the way it will run.

Q. That is about $7,000,000 difference?

A. Yes, around $6,000,000 difference.

Q. All these alarming figures you have been reading to the Court about the loss and deficit have been based on that $22,000,000 valuation you start with?

A. No, sir.

Q. How much?

A. No, sir, because that would only come into consideration if we had attempted to figure a percentage of return. But——

Q. I understood you were reading to the Court from these various exhibits.

(Here ensued colloquy.)

The Witness: There was not anything left in 1907.

Q. What is that?

A. There was not anything left, after paying operating expenses, taxes and rentals, in 1907.

216 Q. That will be in Exhibit 27, won't it?

A. Yes, the last page of Exhibit No. 27, Judge Hill.

Q. The last page of Exhibit No. 27 shows a total return on the property of 1.48 on the business in Arkansas?

A. You mean upon all business?

Q. Yes.

A. I was talking about the total intrastate.

Q. You showed a deficit on that?

A. Yes, sir.

Q. But all of this is based on the theory of a $22,000,000 valuation instead of $16,000,000?

A. Yes, sir; that is 1.48%.

Q. Isn't all the other calculation based on that same theory?

A. No, not the intrastate, because there is no return figure. There is not any return figure. We haven't enough to pay expenses.

Q. You have that loaded down; there is no return on that. I see it is 315.19% extra cost on that: Of course, there is no return on intrastate?

A. There would not be much if there was only 100% extra cost on the freight, and the passenger only 15%.

Q. The point I am getting at is to find out what you have there: It is based on this book value of your engineer's estimate, making about $22,000,000?

A. Yes, sir.

Mr. Moore (to Mr. Hill): What is that?

Mr. Hill:

Q. In all of his estimates of return on property by way of betterment, it is usually minus, but now and then he manages a return, and when he does it is based on that: That is the way I understand it.

217 A. That is correct, sir. The net balance available for return on the value of property on all traffic shown in this Exhibit No. 27 on a valuation of $16,000,000, would be less than three per cent.

Q. What is that?

A. On a value of $16,000,000 that return would be less than three per cent.

Mr. Moore:

Q. The full return?

A. On the assessed basis, yes, sir.

Mr. Hill:

Q. How do you carry the Kansas City-Memphis line, as a property?

A. It is a leasehold.

Q. Just like the main line?

A. A leasehould estate, yes, sir.

Q. You have that under a ninety-nine year lease?

A. Yes, sir, it is a ninety-nine year lease. I don't know just how old it is now. I think I gave you a copy of that.

Q. Yes, I have a copy; I haven't read it, but I understand that is what it is.

A. Yes, sir.

Q. You get rent from that ?

A. We pay rent on it.

Q. You pay rent for that?

A. Yes, sir.

Q. You carry that rent as part of your operating expenses, don't you?

A. No, sir, as an income deduction.

Q. That much out of that part of operating expenses?

A. Yes, sir.

Q. It works the same way. You call it another thing in bookkeeping, but it is really an operating expense, is it not?

A. Yes, sir.

Q. You deduct that from you'—let me see No. 27 again.
218 A. There is an item for it in No. 27, yes, page 2. It is there each year.
Q. On page 2 of Exhibit No. 27 you carry an item of $74,260.08?
A. Yes, sir.
Q. As rental of the Kansas City, Fort Scott and Memphis Railway?
A. Yes, sir, that is the portion chargeable to Arkansas on a road mile basis.

The Court:

Q. For the two months?
A. No, sir, for the four months, your Honor; four months in this instance.

Mr. Hill:

Q. You divide the whole rental of the road, which runs into several states, on a mileage basis?
A. Yes, sir.
Q. And then you take the rental, the Arkansas proportion of that rental, and divide that into three because you cover a four months' period?
A. Yes, sir, it is a stipulated actual payment which we make.
Q. That actual payment, four per cent, is to pay all interest charges on the then outstanding bonds, is it not?
A. No, sir, no, sir; the bond interest of the Kansas City, Fort Scott & Memphis Railroad——
Q. What is that?
A. No, sir, the bond interest of the Kansas City, Fort Scott & Memphis Railroad, and the bond interest of the Frisco Railroad nowhere, absolutely nowhere, appears in these exhibits. What we do pay is this: We pay 4% guaranteed dividends to the holders of the preferred stock of the Kansas City, Fort Scott & Memphis Railroad.
Q. As a matter of fact, your rental contract requires you to
219 pay, as part of the rental, the interest on the then outstanding bonds of the Kansas City, Fort Scott & Memphis Railroad?
A. No, sir.
Q. That is the way you have it down here. I have to look at that contract.
A. No, I think I can clear up that confusion for you.
Q. And then in addition to that, as I understand it, you have to pay four per cent dividend on the preferred stock?
A. We are obligated, under the terms of the lease, to, of course, maintain the integrity of the property and maintain the interest on its mortgages, but having taken the property in as part of our own property we carry that interest charge, not in this rental but with our own bond interest. It is not here. The component parts of this rental are the four——
Q. But that is part of your rental; that is what you have to pay, whether it is carried in this exhibit or not.

A. It is not carried any place in these figures.

Q. I say, you have to pay it whether it is carried in these exhibits or not. That is the question.

A. The property is virtually ours.

Q. What is that?

A. The property is virtually ours.

Q. You do have to pay that as part of your rental contract for this railroad?

A. Oh, yes, sir.

Q. You have to pay all of the interest charges on the then outstanding bonds?

A. Yes, sir, but I want to state emphatically that we haven't charged a dollar of that interest here.

220 Q. I understand you, Mr. Hamilton, but I want the facts. We can put the contract in here, but it is very long. You know what it is?

A. Yes, sir.

Q. You have to pay the interest on the outstanding bonds of the Kansas City, Fort Scott & Memphis at the time your road purchased it?

A. That is correct, sir, to maintain the integrity of the property.

Q. In addition to that you have to pay four per cent on the preferred stock, then outstanding, of that road?

A. Thirteen million dollars, yes, sir.

Q. This $74,260.08 represents the proportion for four months of the Arkansas part of that four per cent dividend on the preferred stock, does it not?

A. That is correct, sir. There are some minor items, but that is the major portion of it.

Q. You carry that as amounting to a charge against operating expenses here?

A. Yes, sir.

Q. And carry the property of the Kansas City, Fort Scott & Memphis as if you had a fee simple title to it, in these exhibits?

A. Yes, sir, as a leasehold estate. I want to explain further, Judge Hill, if I may, that there is another side to that contract and it is apparent in this rental exhibit. By reason of our ownership of the leasehold estate in the Kansas City, Fort Scott & Memphis Railway we acquired control of the Memphis Bridge. That control passed to us with the lease of the K. C., F. S. & M. Railway. It owns

221 all of the stock of the Bridge Company. We show here as a rental credit in this particular exhibit rental earned by the Memphis Bridge of $102,433, which we have credited to expenses in Arkansas.

The Court:

Q. You mean for the four months' period?

A. Yes, sir, the same period in which this $74,260.08 rental was deducted, the net result being, so far as the state of Arkansas as a whole is concerned, that it has received relief by reason of this K. C., F. S. & M. lease to the extent of $28,000 in its expense. If the rental

of the Kansas City, Fort Scott & Memphis should go out, certainly the rental of the Memphis Bridge should go out because one is part of the other.

Q. Is the Memphis Bridge, any of it, credited to intrastate business?

A. Intrastate? No, sir.

Q. Is any of the $74,260.08 charged to intrastate business?

A. Yes, sir, one-sixth of it,—not quite one-sixth, $12,000.

Q. That is, one-sixth——

A. Yes, sir.

Q. — is a charge without any corresponding benefit to the intrastate revenue?

A. Except the use of that railway for intrastate business.

Mr. Hill: That whole item, I think, has to come out, but that will be a matter of argument later on, if Mr. Hamilton tells the facts about it.

(Here ensued colloquy.)

The Witness: Answering your inquiry, Judge Trieber,
222 there is $12,000 of that rental that is charged against the intrastate traffic.

The Court:

Q. What is that?

A. $12,000 of that intrastate rental is charged against the intrastate traffic, but on the other hand, it gets no credit for the Memphis Bridge rental.

Q. $12,000 for four months?

A. Yes, sir.

Q. Which would be $36,000 a year?

A. Yes, sir. If the question of the return upon the total business within the boundaries within the state, state and interstate, becomes material, then the total business is $28,000 ahead on this.

Q. I understand.

A. (Continuing:) We put down all of the facts as we found them in the Company's records, and they are all in the exhibits.

Q. What Judge Hill means is this: Even if the entire thing was in Arkansas, if you already earn four per cent that you pay, then you would be entitled to no more except what the difference might be between what the Court would think would be a reasonable return on your money and what you are receiving now.

A. Yes, but the point is this, Judge Trieber: That this $74,260.08 is a long way from being four per cent on the physical value of the K. C., F. S. & M.

Q. It does not matter what it is. Judge Hill says you are charging $74,260.08 for something that you are paying out as a rental value and then asking in addition to that the full return on your money?

A. Yes, sir.

Q. On your investment?

A. Yes, sir.

223 Q. That would be double: of course, you cannot do that.

Mr. Hill: That is not an arguable proposition.

A. We put it in because we felt we would be criticised if we left the Memphis Bridge proposition out.

Mr. Hill: It is one of those things that go in and go out; that is one of the things that will develop.

The Court: There is no trouble about that.

The Witness: It is not really material, Judge Hill, in the final showing, but we want to tell all the facts, that is all.

Mr. Hill:

Q. Have you Mr. Douglas' affidavit there on which this——

A. We have it here in town, Judge Hill, but, unfortunately, it is not over here.

Mr. Hill: Probably we had better take that up here in the morning.

At this point adjournment was had to Tuesday, June 16, 1914, at 9:30 o'clock in the forenoon.

224 LITTLE ROCK, ARK., June 16, 1914.

Met pursuant to adjournment as above on Tuesday, June 16, 1914, at 9:30 o'clock in the forenoon.

The following proceedings were had:

Cross-examination of Mr. T. A. Hamilton resumed by Judge Hill:

Q. You have the original affidavit of Mr. Douglas before you now, Mr. Hamilton?

A. Yes, sir.

Q. Exhibit 27 explains how you used the figures in the original affidavit, does it not?

A. No, sir; Exhibit No. 27 shows the result.

Q. Which one shows how you use it?

A. How we bring down the old formula to the new?

Q. Yes.

A. That is shown in Exhibit No. 23.

Q. So the Court will understand what we are speaking of, I wish you would state, Mr. Hamilton, what the Douglas affidavit is that we are referring to here.

A. As I understand it, Judge Hill, it is the affidavit, accompanied by two exhibits, which was made by Mr. Douglas (unfortunately, this copy is undated) but it was made at the time the Court passed upon the original plea for a temporary injunction.

Q. It is the affidavit of the auditor of the railroad, upon which the case for a temporary injunction of the road was based.

A. That is my understanding.

Mr. Hill: That is correct, Mr. Moore?

Mr. Moore: Yes, except as to the road's case being based upon it.

Mr. Hill: I am referring to the statistical part of it.

225 Q. Mr. Hamilton, where is the table which shows the equation of the figures there with the original exhibit?

A. Exhibit No. 27.

Mr. Hill: I will be glad for your Honor to turn to Exhibit No. 27, on page 12.

Q. Now, as I understand your general proposition there it is this: You take earnings for the four months' period ending December 31, 1907, as shown in the Douglas affidavit, and with some re-arrangement, of which we will speak later, equate those on the basis of the results you obtained for the test period of the two months November and December, 1913: Is that correct?

A. That is correct, with some large exceptions.

Q. State what those large exceptions are.

A. In preparing the figures which are shown in Exhibit No. 27—and whatever is said as to that period applies also to Exhibits No. 24, No. 25 and No. 26 covering other periods—we found that the basis employed by our accounting department in treating the adjustments which must be made of revenues, on account of overcharges refunded, switching absorptions, and the collection and adjustment of undercharges, had been made on a system of averages. Mr. Douglas had pro rated them on the basis of the gross revenues, and made his adjustment in proportion to the original gross taken up on his books. We did not do that. We went in—I speak now of intrastate freight revenue—we went in, in detail, to an analysis of these adjustments and actually attached them to the intrastate and to the inter-

226 state business——

Q. Have you that analysis with you here?

A. No, sir. It is in immense detail and covers some thousands of sheets; but it is available for examination at St. Louis, in our office.

Mr. Moore: Judge Hill, you may have it at any time you want for that purpose.

Mr. Hill: I think we have it.

Mr. Hamilton: Technically, Mr. Oliver is in possession of it.

Mr. Hill: I have his results, but I want to know if I could verify them with you here.

A. I haven't them here. Your question was as to the equation process: Some things we do not have to equate—for instance, intrastate revenue.

Q. I understand that.

A. We have set up the same intrastate revenue that Mr. Douglas did in his affidavit, because we found our actual analysis really came very close to his average pro rate. But I just wanted to make that statement. There were some items there, as the table shows, which are carried over at 100 per cent of the original figure.

Q. Mr. Douglas' affidavit starts out with a grand total of earnings in the state——

A. No, sir, that is the freight total.

Q. Yes, you are right, that is the freight total.

A. Yes, sir.

Q. You start with that same item, don't you?

227 A. I would have to make some separate figures before answering that, but I think we do.

The Court: You start in with the sum $766,173.46.

Mr. Hill: That is after it is equated. I am trying to develop his primary figures here, irrespective of the equation.

A. Perhaps you can compare that best in totals: Mr. Douglas shows a grand total of earnings——

Mr. Moore: On what sheet is that shown?

A. I am looking at the old affidavit, Exhibit A.

Mr. Douglas shows a grand total of earnings assigned to the State of Arkansas of $1,346,571.79. You will notice he has an item there of "Miscellaneous"——

Mr. Hill: I am coming to that. I think you can verify it in a minute. See if your total freight earnings are not that first figure, $852,610.53.

A. He has some rentals in there that do not belong in the income account. They amount to $127,770.55.

(Witness here figures.)

The figures which are shown here as the amount assigned to Arkansas, under the old formula, the first two items of straight freight revenue total $852,610.53.

Q. That is your primary figure upon which you begin the equating of the revenue?

A. Yes, sir.

Q. Then the passenger earnings show $289,588.37?

A. Yes, sir.

Q. Mail earnings show $30,430.41?

A. That is correct.

228 Q. Express earnings show $46,171.93?

A. Yes, sir, that is correct.

Q. The only other item making up the total of earnings for the state, in Mr. Douglas' affidavit, is the item "Miscellaneous" $127,770.55?

A. Yes, sir.

Q. There is where the difference comes in in the re-arrangement—and some other matters?

A. Yes, sir: he has an item amounting to $102,000, in round figures, Memphis Bridge rentals.

Q. A part of this you have down there.

The first item there is $102,433 for the rent of the Memphis Bridge: That is correct?

A. Yes, sir.

Mr. Hill: What I am attempting to do is to analyze the figures $127,770.55, which Mr. Douglas calls "Miscellaneous earnings;" and on page 2 is a partial analysis of it. The first item there is "Rent of Memphis Bridge, $102,433.

Q. The next item I find in Mr. Douglas' affidavit, going to make up his figure is "Rental of Fort Scott & Memphis Railway", $—?

A. Yes, sir.

Q. I see that under the head of "Joint Facilities-Rent" you have $7,173.55: I presume those are substantially the same items, with some small differences: Is that correct?

A. I would like to explain those differences, if I may—it will take but a minute.

The difference between Mr. Douglas' figures and mine is
229 this: I have followed the Interstate Commerce Commission's classification, while he has made a re-arrangement, in his affidavit, according to his own ideas as to what it should be.

Q. The item of $127,770.55 represents the same item that Mr. Douglas carries as $—?

A. I cannot say. I don't know what he has in his figures.

Q. I don't mean the dollars and cents are the same, because they are not; but they represent the same accounts.

A. I don't know what he has, because I have not seen Mr. Oliver's analysis of the $127,770.55 item. He did not submit his figures to us, so I don't know. But undoubtedly Mr. Douglas has that rent somewhere in there.

The next item I find in Mr. Douglas' affidavit is "Switch Revenue" $17,273.63.

A. That checks with Exhibit 27.

Q. Your figure is the same as that in Mr. Douglas' affidavit?

A. Yes, sir.

Q. The next item is "Excess baggage", $4,687.53.

A. That also checks with Exhibit 27.

Q. The next item is "Car Service", $4,503.94.

A. That also checks with Exhibit 27.

Q. The next item is "Special Train Service Revenue," $2,633.36.

A. Yes, sir, that agrees with Exhibit 27.

Q. The next item is "Station and Train Privileges", $1,359.69.

A. Yes, sir, that checks with Exhibit 27.

Q. The next item is not there, but it is another point which I will take up later.

230 The next item is "Miscellaneous Transportation Revenue," $463.80.

A. That is correct. That checks with Exhibit 27.

Q. The next item is "Parcel Room Receipts," $143.31.

A. Yes, that is the same as in Exhibit 27.

The Court: For what length of time are those figures?

A. For the four months ending December 31, 1907.

Mr. Hill:

Q. The next item is "Storage of Baggage," $112.91.

A. Yes, sir, that checks with Exhibit 27.

Q. The next item is "Storage of Freight," $1,738.87.

A. Yes, sir, that checks with Exhibit 27.

Q. The next item is "Miscellaneous non-Transportation Revenue," $1,487.91.

A. That is non-transportation, yes, sir.

Q. That figure checks with your Exhibit 27?

A. Yes, sir.

Q. In addition to that, making up Mr. Douglas' figures, is the item I have passed over: That is the item "Rent of Buildings and other Property," $721.31.

A. That is under the Interstate Commerce Commission's Account No. 18.

Q. You carry the same in your exhibit 27?

A. Yes, sir, $721.31.

Q. So that item while transposed is used the same way in both exhibits?

A. Yes, sir. Its effect on the net returns is the same in both cases.

Q. That is the way I understand it.

Here is a group of items amounting to $1,788.17, which I find in Mr. Douglas' affidavit that I fail to find in your Exhibit 27.

A. Yes, sir.

231 Q. Mr. Hamilton, I find in Mr. Douglas' affidavit, an item "interest on bonds and notes in the treasury," $14,903.65.

A. Yes, sir.

Q. You struck that out, did you?

A. Yes, sir. The same as we did not take in the interest on bonds of the Company outstanding. We left it out on both sides.

Q. What bonds were those, Mr. Hamilton, do you know?

A. I cannot answer that off hand.

Q. My memorandum is "interest on bonds and notes in the treasury." Do you know what bonds those represent?

A. I cannot say. But on its face it appears to be bonds the Company owns of some other company, but I don't know.

Q. You found this item in Mr. Douglas' affidavit and struck it out in your exhibit?

A. I didn't find it. I simply didn't take into consideration any interest items at all.

Q. That represented investment bonds and notes, I presume?

A. I presume so.

Q. The next item is interest on bank deposits, $1,086.21?

A. Yes, sir.

Q. That was in Mr. Douglas' affidavit?

A. Yes, sir. And we did not take it in in our Exhibit 27.

Q. You did not take that in?

A. No, sir. I would like to say in that connection that we gave very serious consideration to that item, small as it is; but in our valuation we have not taken into consideration any amount for a

232 working fund—that is, excess of current assets over current liabilities; and this being interest on current assets, we just left it out.

Q. The next two items are very small. One is "Interest on advances, $27.71?"

A. That would be of the same nature.

Q. You left that out?

A. Yes, sir.

Q. The next item is "Interest on sinking fund, $866.59?"

A. That is hardly an earning, as I understand it, because it is a sinking fund accretion in itself.

Q. That was in the Douglas affidavit and you left that out of your Exhibit 27?

A. Yes, sir.

Q. The next item is "Dividend on stocks owned, $1,778.28?"

A. Yes, sir.

Q. That is in the same category as "Interest on bonds and notes in the treasury?

A. Yes, sir.
Q. Do you know what those stocks owned were?
A. I do not know in detail.
Q. They were investment stocks owned by the railroad?
A. I assume so.
Q. This account should cover that?
A. Yes, sir, it should cover that.
Q. The next item is "County scrip, $11.68?" What is that?
A. That is beyond me. I haven't met up with that one yet.
Q. Don't you remember finding that in Mr. Douglas' affidavit?

233 A. No, sir. Perhaps I can save you some inquiry on that point by saying this: We took into consideration no interest on bonded debt. We did not take into our value, which we show here as a basis of return, anything but the physical property. Not having taken into consideration these outside investments, or the working fund, we naturally did not include the increment or earnings from them.

The Court: You did not allow interest on the working fund—which of course a system like that must keep on hand?

A. No, sir, not a dollar. We have not asked for it.

Mr. Hill: I believe I stated that the total of these omitted items amounts to $18,788.17.

The next item I find here is debits: "Hire of equipment, $24,-851.10." I believe you treat of that in Exhibit No. 2, don't you?

A. No, sir, that is treated for this particular period in Exhibit 27.

Q. I mean on page 2 of Exhibit 27.

A. No, sir, that is the rentals. It shows, beginning with page 3, and the summary is on page 5. I do not find that item on the face of Mr. Douglas' affidavit, though. It got buried somewhere.

Q. It goes into that $127,770.55?

A. Oh, yes.

Q. As I have it here on my memorandum, these total items which I have read over to you amount to $164,460.41.

A. What are those, Judge Hill?

Q. I say those are the total items before deductions are made, which go into Mr. Douglas' "Miscellaneous," and then he

234 deducts from that "Hire of equipment," $—, "Interest on notes and bonds," $—, making a total reduction of $—, leaving a balance of $127,770.55, which he carries into his affidavit?

A. Yes, sir. His "Miscellaneous earnings" are about half income charges and credit.

Q. And you have rearranged them according to proper accounting methods?

A. Yes, sir.

Q. With the differences we have now pointed out?

A. Yes, sir, with this exception: That we have not given any consideration to bond interest because we have not taken into consideration any bonds or stocks owned or interest earned.

Q. Bringing down this part of the total of $127,770.55 by the amount of $—, interest on notes payable?

A. Yes, sir, we have not charged that up.

Q. You are sufficiently familiar with this to know without going into further verification that that is a correct analysis of $127,770.55?

A. I think it is, undoubtedly, yes, sir.

Q. We have all this data here, if you want to look at it, but I presume you are sufficiently familiar with it to know it.

A. That is unquestionably the general character of it, yes sir.

Q. I see that in transposing your account, on the debit side of hire and equipment, instead of $24,851.10, as found in Mr. Douglas' affidavit—that is the net debit.

235 Q. That is on page 5, isn't it?

A. Yes, sir.

Q. How is that made up?

A. The explanation is shown on page 3. It appears on page 3 that the net debit for hire of equipment, considering all classes on the whole railroad, in this four months' period, was $62,656.77. Included in that first item is a net debit for hire of locomotives. Perhaps an explanation of that will serve to explain how all the others were handled. Above that, in the preceding table, on the same page, we show the locomotive mileage made upon the entire line of railroad and in Arkansas, for the same period. We show that the mileage of locomotives in Arkansas was 10.68% of the total for the whole line. We bring that percentage down and divide this $10,000 locomotive hire of equipment debit on that basis, and assign to Arkansas $1,100.48.

Q. You carry that same plan through into the other equipment?

A. Yes, sir. We felt it was proper to apportion the earnings from hire of equipment, and in the case of work cars it is on earnings there; or, the cost of hire of equipment of other companies, whichever way the balance ran, on the basis of the use we got out of that equipment—the mileage it made.

May I ask a question? You said something about $24,000 as contrasted with that $6,000.

Q. Yes, I wanted to know how that was reached in Mr. Douglas' affidavit.

A. Is it a debit or a credit?

Q. It is a debit.

A. He has charged $18,000 more than I have.

236 Q. I know that, but I want to know his system.

A. Yes, sir.

Q. That is the reason your figures come out about the same; you drop about $18,000 of his charges for interest on bonds, and various other matters, and he includes this $18,000 item?

A. Yes, sir.

Q. I am speaking in round numbers, of course, but they are each about $18,000, being the difference on opposite sides?

A. Yes, sir.

The Court: You mean the amount charged as a debit is $18,000 more than the credit?

Mr. Hill: Not on that particular item.

The Court: I mean on the particular item.

Mr. Hill: On this particular item Mr. Douglas has the state charged with $18,000, while Mr. Hamilton charges $6,000. Mr. Douglas' affidavit, made before that deduction was made, adds $18,000 for various items of interest on bank deposits, sinking fund, and so on, that Mr. Hamilton drops out. So, speaking in round numbers, one of those items about balances the other.

The Court: You do not charge or debit the account with anything they paid out for interest, or credit them with interest on their working balance, or interest they received on the working balance?

A. That is it, exactly, sir.

The Court: Isn't it absolutely essential for a system like that to keep on hand a pretty large sum of money as a working fund?

237 A. Yes, sir, it is. The reason for its omission, and I understand that to be the purpose of your Honor's question—was that we thought there might be some controversy about the amount of that working fund. So we simply left it out.

Mr. Hill: On the final figure "Hire of equipment," it is a credit, on page 15 of Exhibit 27?

A. No, sir, it is a debit; it is a charge.

Q. In making up your rental account on page 15 of Exhibit 27, you take three items, "Rent of buildings," $721.31; "Joint facilities" account, $7,173.55; and "Memphis Bridge rental" $103,433.00; making a total of $110,327.86?

A. Yes, sir.

Q. Then you deducted from that the rent which you pay in the form of 4% interest on the preferred stock of the Kansas City, Ft. Scott & Memphis, $74,260.08?

A. Yes, sir.

Q. Leaving a credit balance of $36,067.76?

A. Yes, sir.

Q. Then you deduct from that this $6,000 debit on hire of equipment, or $6,624.48 net debit on hire of equipment, and that brings down on this account a credit of $29,443.30?

A. That is correct.

The Court: Is the whole of that charged to interstate?

A. The Memphis Bridge rental is all credited to interstate, but the K. C., F. S. & M.——

The Court: But you charge the intrastate business with its proportion of the rental?

A. Yes, sir, we have in the original exhibit.

238 Q. Of the $74,000?

A. Yes, sir.

Q. But you do not credit them with the income?

A. Yes, sir. The amount charged to intrastate of that $74,000 rental of the K. C., F. S. & M. was $12,114.60.

Mr. Hill: That is, on the sub-division between state and interstate?

A. Yes, sir.

Q. The column with which we are dealing now is the total business in the state, the assignment of property, and so on, and when he comes to divide that of course it will follow the other items.

The Court: I understand. The $102,000 should not be credited to the state?

A. No, sir.

Mr. Hill: If this $74,260.08 is erroneous, then this debit of $29,433.00 should be credited with that difference?

A. Yes, sir. I will work that out here if you care to know how it comes out.

The Court: I understand it is $12,000.

Mr. Hill: No, sir, not at all. That would be the sub-division between the state and interstate.

A. On the total, if the $74,000 debit be thrown out, the return of $102,000 on all business in the state would be increased to $184,000, and the percentage of return would be changed from 1.48 to 2.47.

Mr. Hill: I presume that is correct.

A. We have all the figures.

239 Q. That is on the total business of the state. When you come to the sub-division that brings up other factors which are entirely irrelevant to this particular account?

A. If you take that up and add it, we have still a deficit of $129,000.

The Court: That is the figure on the four last months of the year?

A. Yes, sir.

Mr. Hill: Now, with the exceptions we have just been going over, your Exhibit 27 is the same as Mr. Douglas' exhibit, so far as the primary figures are concerned?

A. We start with his figures as a basis.

Q. Before you make these equations?

A. Yes, sir. You speak now of earnings?

Q. Yes, I am speaking now of earnings.

A. Yes, sir.

Q. Is not the same true of expenses?

A. I haven't checked those up.

Q. There is one item you have not in yours, that he has in his expense account—probably the largest. He charges interest $391,914.03.

A. No, sir, we did not charge any interest on our funded debt.

Q. That is the item which produced the deficit on the whole business of the state of $220,702.64, upon which Judge Vandeventer granted this injunction.

Mr. Moore: You have gotten into ancient history now, and you are not a very good historian.

Mr. Hill: Are the expenses the same way? I do not care to go into details just now.

A. No, sir, there is no difference.

Q. The expenses that you use in your Exhibit 27 are identical

with the expenses in Mr. Douglas' affidavit, except that item
240 of interest, $391,914.03?

A. You mean we start in that Exhibit with Mr. Douglas' figures?

Q. Yes.

A. Yes, sir, our basis is the same to start with, but of course the figures we finally show on page 15 are different.

Q. I understand that.

A. I start where he left off, in other words.

Q. Yours are the same expense figures with that interest exception?

A. Yes, sir.

Mr. Moore: Are those the total expenses assigned to Arkansas?

A. Yes, sir.

Mr. Hill: Mr. Hamilton, in getting your test period, how did you exclude the lap-overs we discussed so much in previous rate cases, or did you exclude them?

A. Those lapovers, as I recall them, so much discussed, were in the earnings.

Q. Yes.

A. We have not touched earnings in the test period, but simply analyzed all physical operations. The first earnings analyzed were for the entire year.

Q. Take the earnings for the two months which you took as a test period, upon which you equate for the previous period.

A. You mean what?

Q. They are derived in what way from your books?

A. We did not handle in any way any earning figures in the months of November and December, 1913. This equation of revenue to which you refer is the result of re-analyzing and locating the revenue for the whole year ended June, 1913, and applying it against Mr. Douglas' report to the State Railroad Commission for that year. There is no equation for the two months, so
241 that lapover proposition would not apply there.

Q. Take your Exhibit 27, page 12: That is for the two months' period, is it not?

A. No, sir.

Q. Assignment of earnings and expenses to the state of Arkansas, and to freight and passenger, intrastate and interstate, and mail and express traffic, for the four months ended December 31, 1907?

A. Yes, sir.

Q. But was not that assignment made in the equation of these primary figures, by taking the revenue of the two months' period?

A. No, sir.

Q. How did you get that equation of revenue?

A. You will find in Exhibit 23 a statement is made as to how that was done, in detail. But, briefly, it is this: That is not an equation based upon a comparison of two months' revenue, reworked by us under the formula in Exhibit 1, with that formerly set up by our auditor for report to the State Railroad Commission; but it is a comparison of the reworking under the formula for

the earnings of the entire year ended June 30, 1913—not a short period, but a whole year. And this revenue percentage basis is based on a whole year's earnings, and not on two months.

Q. And the percentage equation is based on the two months?

A. No, sir.

Q. On what is it based?

A. The equation of course goes to the assignment of earnings to the state of Arkansas.

Q. Isn't that based on the two months' test?

A. No, sir.

242 Q. On what is it based?

A. It also is based on the entire year 1913.

Q. How did you get that year?

A You mean our re-assignment to Arkansas?

Q. Yes.

A. Item by item, in detail.

Q. Under what formula, then?

A. Under the new formula and contrasting it with the old.

Q. Is not contrasting it with the old a use of the percentages obtained under the two months' test period?

A. (After examining exhibit.) No, sir. That assignment was made for the whole year, so far as the assignment to the state is concerned, in accordance with the formula. We went over, step by stey, every different item of expense.

Q. Where did you use your percentages obtained in your test period?

A. Not for any purpose of equation, but simply for the purpose of showing the extra cost of intrastate over interstate business.

Q. When you got that, you added that extra cost to this four months' period?

A. Yes, sir, but not in assigning expenses to Arkansas. In dividing them between state and interstate we did.

Q. Then you did not use the two months' test in making the assignment to the state of Arkansas?

A. No, sir.

Q. You merely used that when you came to assign between intrastate and interstate?

A. Yes, sir.

243 Q. And I presume also between freight and passenger, didn't you?

A. No, sir, the freight and passenger assignment was also made on the basis of the year's analysis.

Q. Which year, 1913?

A. Yes, sir, that is my recollection; but I want to be clear on that, if you please. (After examining Exhibit 23.) The freight and passenger division followed the two months' test.

Q. And the intrastate and interstate also followed the two months' test?

A. Yes, sir, but the assignment of expense to the state of Arkansas was based on the year's analysis, as explained.

Q. And the earnings were based on the year's analysis?

A. Yes, sir.

Q. You did not take any earnings at all in the test period?

A No, sir, we simply determined the freight and passenger expenses, and determined the percentage of extra cost of state over interstate.

Q. How was the matter of lapovers taken care of in the four months' period ended December 31, 1907, if you know?

A. That is a question I cannot answer.

Q. What is the proper way to take care of those?

A. I think in a four months' period the lapovers of earnings would be inconsequential, especially on intrastate business, where the haul is as short as on our road in the State of Arkansas. Our average haul is less than 25 miles, and there could not be
244 much lapover on that character of business; it does not go far enough. Our average interstate haul is 150 miles. You see, we cut all the corners of the state, and there is not much room for the stuff to be long in transit in the state.

Q. Then the freight in transit from one month to another, or one period to another, should equalize itself in a period of time?

A. That is my judgment. It might not in one month, but I think it would in four months or six months.

Q. Haven't you analyzed the way these earnings are gotten at, for the four months' period, in regard to the freight in transit?

A. No, sir. As to the intrastate freight, with which we chiefly concerned ourselves, that, of course, is taken directly from the way-bills covering the freight that moved within those months; that is, the freight way-bills dated within those four months; and on a twenty-five mile average haul there would not be much lapover on a state shipment. That is, unless it was billed absolutely on the very last day of the month, and then very late in the day, it would be taken into account before the next month caught it. On the interstate, we did not go into that.

Q. Don't you carry on your books an account of freight in transit from month to month?

A. That is interline settlements, yes, sir.

Q. Don't you on your own road as well as on foreign lines?

A. That is our interline account.

Q. Don't you carry it both ways, interline account of ex-
245 pense in transit of freight on your own lines?

A. We may, I am not clear as to that.

Q. That is in connection with the forwarded basis?

A. Yes, sir.

Q. Carrying forward into your account freight in transit in each month, so freight received and freight forwarded would balance?

A. We are on a forwarded basis in that we take into account the freight which is billed, the way-bills which are dated during a given month. Some roads take it on a received basis, the freight actually received at a given station.

Q. You are on a different basis?

A. Yes, sir. It does not make much difference on the intrastate, because it goes only an average of twenty-five miles. We have a

pretty short haul in the state, not much of a journey to go, and there is not much chance for a lapover.

Q. Haven't you any working sheet showing the detail of the way your earnings are made up in that four months' period, Mr. Hamilton?

A. No, sir, I haven't here.

The intrastate is the original figure set up by Mr. Douglas, which is in our judgment reflective of the actual intrastate earnings during this period. We made no change in that.

Q. The interstate is the same?

A. We have added a little.

Q. Then after you got that, you had equated it—I am speaking of primary figures.

A. No, sir. I have not his detail. It is available in St.
246 Louis. It would be a very voluminous proposition, Judge Hill.

Q. You say you have no analysis of that?

A. I have none here. The auditor's records would afford it.

Q. I have an analysis of it here, and I hoped we might check it over together.

A. I recall that some months ago the state's accountant called at your instance and presumably checked that. But they never told us what they found, and I have not the details.

Q. You have not the working sheets at all?

A. No, sir, we never checked that.

Mr. Hill: I presume I would better give these to Mr. Hamilton, so he may check it over before we come back here next week.

Q. Have you any data on your expense account as to how these figures which you have used were made up?

A. We have in St. Louis.

Q. You haven't anything here?

A. No, sir. Those things run into thousands of sheets.

Mr. Moore: Let us have an understanding now about that: If you want those sheets we can have them sent down here. I don't want to be in the attitude of withholding anything.

Mr. Hill: We have made up analyses, but not in the form of exhibits—just pencil memoranda. I understood that Mr. Hamilton would have his working sheets here and we could go through them together. I have a great many items of expenses here, which we believe are erroneously charged, amounting to $50,000 or $60,000. It is a matter of verification.

The Court: They offered to let you have all of them.

247 Mr. Hill: We have already had them, and that is the way we found it out. But I supposed Mr. Hamilton had his working sheets here, and we could work them up together. I thought we could submit the figures and let him check them. I thought that was the quickest way to get at it.

A. I might say I have here the results of that formula; perhaps the detail is not material. I have Mr. Douglas' formula, and his results and my results.

Q. We found a great many errors—like putting in part of the expenses of Missouri into Arkansas, and part of the expenses of Oklahoma into Arkansas. Have you any detail here by which you can look into that?

A. No, sir, I understood the state's accountant would submit those figures to us, but we have never seen them.

Mr. Moore: Let your accountants submit those figures to Mr. Hamilton in St. Louis, where they are accessible, and any figures that need explanation or you want verified, can be attended to there. Let him look them over and as to those as to which there is any difference, he will bring them down here, and as to those not in controversy he need not bring them down here.

A. I understand that these errors in the check you referred to are the check of Mr. Douglas' original figures?

Mr. Hill: Yes.

A. Mr. Douglas' affidavit first filed in the case?

Mr. Hill: Yes.

The Court: Were the Douglas figures verified by you or did you adopt them without any question?

A. We were advised by Mr. Douglas that these figures had been made upon the basis of the formula which the railroad for-
248 merly used, and which they had used in reporting to the State Railroad Commission, although they did not report this four months' figures; but on the year in which those months are included, they used that basis. We assumed the figures were correctly made on the basis of the formula. We contrasted those with figures on the basis of the new formula, and in so far as we took those figures for a basis, we used those figures, but they are not shown in Exhibit 27, in the final figures. They are equated there and carried over.

Mr. Hill: They are the starting point of your equation?

A. Yes, sir.

The Court: And adopted as absolutely correct?

A. Yes, sir.

Mr. Hill: Except on the revenue where he took some out and added others.

The Court: I understand that.

Mr. Hill: I will state, it is no criticism of his figures—that we had an analysis made last fall, but we did not know until last Friday that those same figures would enter into this exhibit. On last Friday Mr. Hamilton very kindly came down to Haskins & Sells' office in St. Louis and explained them to me.

Mr. Moore: Judge Hill, have you the total net difference in the amount charged to Arkansas growing out of the discrepancies referred to?

Mr. Hill: Mr. Oliver can figure it up, but it would be merely an approximation.

Mr. Moore: Give it to me approximately, then.

Mr. Hill: That is on the expenses alone. For the four months,

in round figures, it is $63,820.00 over-statement of the ex-
249 penses.

Mr. Moore: Have you anything on the other side of the account?

Mr. Hill: That is the net. There is some expense of Arkansas charged into Missouri, usually in small quantities.

Mr. Moore: Give me the details.

Mr. Hill: There are some other items, going to the bases, mistakes in re-assignments, and so on.

At this point by consent of counsel adjournment was taken to Monday, June 22, 1914, at 10 o'clock A. M.

250 LITTLE ROCK, ARK., June 22, 1914.

Met pursuant to adjournment as above on Monday, June 22, 1914, at ten o'clock in the forenoon.

Present: Same parties as heretofore.

The following proceedings were had:

Cross-examination of Mr. T. A. Hamilton resumed.

By Judge Hill:

Q. Mr. Hamilton, when we took a recess, you were to investigate some errors which it was claimed had occurred in the primary figures used in this case, as found in the Douglas affidavit. Have you gone into them?

A. Yes, sir.

Q. I wish you would state to the Court the results of your investigation?

A. We found, on going over Mr. Oliver's figures for the four months ended December 31, 1907, that Mr. Douglas in his original affidavit had made an over-assignment of expenses to the State of Arkansas of $48,399.20. That was the result of mathematical errors in applying the formula which the Railroad Company at that time used, and still uses, for the purpose of making its reports to the State Railroad Commission.

Q. Well, was that an error of assignment on that item? I understood that was largely putting in expenses that belonged to Missouri, Oklahoma and Kansas.

A. I said, mathematical errors.

Q. It is errors of that character, largely?

A. Yes, sir, in some cases. I would like to say further, in that connection, that most of the errors, or the larger portion of
251 them, rather, were in the month of September, the first of the four months under consideration. I have since carefully re-checked the entire four months, and this difference which Mr. Oliver and I agreed upon, was due entirely to errors in the statement of the assignment proportion, or the use, perhaps, of erroneous percentages here and there.

Q. It is conceded that there are errors amounting to $48,399.20?

A. Yes, sir.

Q. There is a difference between you and the experts representing the state, I understand, not as to the actual figures, but as to whether the items amounting to some fourteen thousand dollars are or are not erroneously assigned to the state. I wish you would explain that.

A. For the purposes for which these figures are used here, it is hard to understand how there can possibly be any difference of opinion. Mr. Douglas, our General Auditor, had a formula which he used in these four months, and which outlined what he conceived to be the correct basis for the assignment of expenses to individual states. Mr. Oliver, representing the State, thought that some of those bases, as an academic proposition, were incorrect. I do not see that that has any bearing whatever on the matter in hand. Mr. Oliver did not think Mr. Douglas had a-opted a proper method or basis for assignment to the state. I really cannot see what bearing that has on these figures. The point is this—I don't know that I can make it any clearer than I have, but I will try—Mr.
252 Douglas had a-opted certain units, or certain bases, for this allocation of expenses to individual states. We find that it was his intention, and excluding these clerical inaccuracies he did uniformly use that basis in the four months covered by Exhibit No. 27, and in the entire year ended June 30, 1910, June 30, 1911, June 30, 1912, and June 30, 1913. Now, having used that basis uniformly it makes no difference whether it was academically a correct basis or not, for the purposes for which it was used in this case.

Q. As I understand, largely from the letter which you wrote to the accountants, and sent a copy to me, this difference largely grew out of Mr. Douglas using one method of pro-rating these expenses for the month of September, and another method of pro-rating them for the months of October, November and December.

A. Yes, sir, and wherever he did that, in some cases he used car miles in September where he should have used train miles—as an illustration. In October, November and December of that year, and ever since, he has used the train mile basis. Now, to undertake to re-work four years and three months to fit in with the errors of one month would, it seems to me, be having "the tail wag the dog." What we did do was to re-work the month of September so that it is now uniform with the four years and three months' period used in these exhibits.

253 Q. The substance is that if the bases which were used in September had been followed for the other three months of that period, the errors would have been approximately $14,000 more?

A. No, sir, because that was not his basis. His formula does not say so. Because the clerk erroneously applied the formula does not affect the formula.

Q. I am speaking of what was actually done in September. If what was done then had been continued throughout the other three months it would have made a difference of $14,000, wouldn't it?

A. Yes, sir, there would have been a change in the figures to that

extent. But I want to make that point clear, if I may, so the record may show just what use was made of those figures.

Mr. Douglas had a formula, which he still uses for making reports to the State Railroad Commission. It is all set forth here in Exhibit No. 23 in minute detail. He used that formula consistently for the months of October, November and December, 1907, and for the four complete years for which we have submitted figures here. He used it in 1913. In the year 1913, we re-worked the entire expenses upon the basis of this new formula, Exhibit No. 1. We found the results of that procedure brought a certain figure, which bore a certain relationship to what he had done under the old formula. Now, then, we took that percentage relationship and applied it, as a matter of equation, to what he had gotten under the old formula in all
254 these back years, including the four months under discussion now, and, having uniformly applied that formula through all these periods—and I have had that fact of the uniform application verified—it seems to me to re-work a period of four years and three months to check a few errors in application—but not in principle—in any one month, would be having "the tail wag the dog." I cannot think of any better way to put it.

Mr. Moore:

Q. You have corrected those errors in September, 1907?
A. Yes, sir.
Q. And agreed upon the amount?
A. Yes, sir.

Mr. Hill:

Q. You have assumed that the application of the bases in September was wrong?
A. I know it was.
Q. And upon that assumption you have corrected September to make it uniform with October, November and December of that year, and all subsequent years?
A. Yes, sir, all of the subsequent years.

Let us assume on a given item that Mr. Douglas' typewritten formula says that expenses shall be assigned between the states on a train mile basis, and he used a train mile unit beginning with October, 1907, and subsequently; and that the clerk who made the assignment in September, 1907, the month in controversy, had that formula before him reading "train miles," but he fell down on that and used car miles.

Q. Have you Mr. Douglas' formula before you, Mr. Hamilton?
A. Yes, sir, I have it.
Q. Account 106?
255 A. You speak of apportionment of expenses to state?
Q. I assume so. It is "Transportation expenses."
A. You know there are several assignments prescribed by this formula.
Q. Don't you find Account 106 on page 2?
A. Yes, sir, but there are two or three bases.

Q. I will read what is here:

"Account 106, loss and damage to freight on a freight car mileage basis."

That is how the formula I have reads. Is that what you have?

A. No, sir.

Q. What have you?

A. Account 106 is not loss and damage to freight. Account No. 99, I think you have.

Q. It is Account 106 according to the paper we have. The accounts, I understand, have been changed in number since this formula was made up.

A. It is loss and damage to freight you are talking about?

Q. Yes, and it is changed now.

A. Yes, sir, there was a change made in 1907.

Q. Isn't that on a freight car mileage basis?

A. Yes, sir, and the formula so states.

Q. I call your attention to Account No. 106 on the Douglas formula which calls for an assignment of loss and damage to freight, to the State of Arkansas, on a freight car mile basis, and will ask you if the amount assigned to Arkansas was not arrived at on a freight train mileage basis?

256 A. I find in each of these four months, September, October, November and December, 1907, comparing the figures which Mr. Douglas originally submitted to the Court in his affidavit, he divided loss and damage to freight between Arkansas and the balance of the system on the basis of freight train miles.

Q. Whereas the formula calls for a division on the basis of freight car miles?

A. Yes, sir. I would like to answer that a little further. In arriving at the $48,000 difference, which has been mentioned here this morning, that item was re-divided on the basis of the freight car miles.

Q. And you redrafted those calculations through the four months?

A. That is my understanding, yes.

Q. Mr. Hamilton, have you verified your figures and can you state you have changed the September, October, November and December, 1907, figures from the freight train mileage to the freight car mileage, on this item 106?

A. No, sir. I misunderstood your question, apparently, Judge Hill. What I intended to say was this: Those figures have not been changed nor has, in any month subsequent to that time, the division been made on any other basis than the freight train mileage. I see Mr. Douglas' printed formula says he made the division on freight car miles. I want to say I have had and gone through Mr. Douglas' divisions on this item "Loss and Damage to Freight" between Arkansas and the rest of the system for each of these four months,

257 and for each of the years 1910, 1911, 1912, and 1913, and I am prepared to state positively, as a matter of personal knowledge, that in each month of these four, and in each month

of those years, he used the freight train mile consistently throughout to divide those expenses between Arkansas and the outside world.

Q. Although his formula called for car miles?

A. Yes, sir. That is a matter of personal knowledge.

Q. It makes a difference in the four months' period of $1,653.53?

A. If you ask my judgment, neither one is worth the paper it is written upon.

Q. It makes a difference of $1,653.53?

A. Not for the purposes for which the figures are used.

Q. I am speaking of actual figures, Mr. Hamilton.

A. You must consider the figures in relation to the purposes for which they were used—a matter of equation.

Q. I am getting at actual figures.

A. You mean as a mathematical proposition?

Q. Yes.

A. Yes.

Q. It makes a difference of $1,652.63, had the formula been followed?

A. Yes, sir, had the printed formula been followed.

Q. Mr. Hamilton, turn to Account No. 29, I think it is, on the Douglas formula: "Steam locomotive repairs, renewals, and depreciation."

A. Yes, sir.

Q. Mr. Douglas' formula calls for that to be assigned on the basis of locomotive mileage.

A. It so states.

258 Q. Was that followed?

A. Yes, sir, consistently throughout all the period.

Q. My understanding is that a passenger and freight engine mileage basis was followed?

A. Yes, sir, that is correct, consistently throughout all the period.

Q. And not the total locomotive mileage?

A. In other words, Mr. Douglas followed his understanding of the formula and not Mr. Oliver's.

Q. We are speaking of locomotive mileage, and not your argument.

A. I am trying to tell you what he did do.

Q. He followed the division on the basis of passenger and freight engine mileage, instead of all locomotive mileage, didn't he?

A. He followed road locomotive mileage.

Q. Road locomotive mileage and freight and passenger locomotive mileage are the same thing, aren't they?

A. Yes, sir. That will eliminate switch engine mileage.

Q. What about mixed trains?

A. We considered that for our purposes as freight trains.

Q. I am not speaking of your purposes, but the actual mileage. There would be quite a difference in the figures of mileage if you included all the locomotive road mileage, wouldn't there?

A. We found that the division was made, not only in each of these four months, but in the years 1910, 1911, 1912 and 1913,

consistently all the way through, on the basis of freight and
259 passenger locomotive miles.

Q. That ignored the switch trains, mixed trains, special locomotives, etc., didn't it?

A. Yes, sir, consistently ignored them all the way through.

Q. And the work train mileage?

A. That is correct.

Q. If the mileage of all locomotives had been used to assign this item to Arkansas, it would have made a difference of $4,099.61, wouldn't it?

A. I will have to total that. (After figuring) Mr. Oliver's interpretation of what Mr. Douglas meant by this formula would have made that difference in the figure.

Mr. Hill: I object to that way of answering the question. I am simply asking for figures and Mr. Hamilton interjects explanations.

The Court: The Court of Appeals has held that in a case in which the testimony was taken orally the lower court ought not have excluded some of the testimony, because it being a case in equity, and tried de novo, all testimony should go in, whether admissible or not, and then could be excluded later.

Mr. Hill:

Q. Please just answer the question, Mr. Hamilton. If the use of all the locomotive mileage would not have produced the figure I have given you—$4,099.61?

A. Yes, sir.

Q. There is another difference in these accounts, as I understand it, between September and the other three months, as to
260 whether the various accounts are assigned to the divisions or whether they are assigned to the state as a whole.

A. What particular accounts are those?

Q. "Work equipment," "Repairs and renewals," "Depreciation:" Those are three of them and, I think, there are some others. And in addition to those are the accounts No. 87, 88-A, 88-B and 88-C.

A. Yes, sir. Taking the first item, work equipment, repairs and renewals and depreciation.

Q. Explain the difference in the assignment of those expenses to Arkansas during September, and the way they were assigned by Mr. Douglas during the remaining three months.

A. In September, 1907, in the preparation of the figures in the original affidavit, Mr. Douglas first assigned the accounts to which you refer, to accounting divisions, on the basis of mileage; and then sub-divided the assignment to accounting divisions to Arkansas, on the basis of the mileage within and without Arkansas on each division separately. That refers to the month of September. In the month of October, and subsequently down to June 30, 1913, Mr. Douglas made the assignment of those accounts without first making the assignment to accounting divisions. That is, he made the division to Arkansas in total versus the entire line.

In arriving at this $48,000 we spoke of this morning, September has been re-worked to conform to all the subsequent periods.

261 Q. Mr. Douglas' formula on that subject reads as follows: (I wish you would verify it)

"Division of operating expenses between states for statistical purposes is made as follows: Actual, when the entire accounting division is in only one state: If an accounting division extends through more than one state the under noted bases are used:"

A. Yes, sir.

Q. "Maintenance of way and structure accounts 1 to 25, exclusive of accounts 19, 20 and 21, on road mileage"?

A. Yes, sir.

Q. "Accounts 19, 20 and 21: Work equipment repairs, renewals and depreciation."

A. Yes, sir.

Q. Work train mileage, that is?

A. Yes, sir.

Q. That is correct?

A. That is what the formula states.

Q. That is a correct statement of the formula?

A. Yes, sir.

Q. And that was followed, as I understand it, in September, 1907, but not subsequently?

A. Yes, sir, and not followed since. That is a correct reading of the formula, verbatim; but, it seems to me, it is susceptible of two or three interpretations—at least it is to my mind.

Q. Mr. Hamilton, taking the September basis that Mr. Douglas worked out: Didn't he assign the actual shop reports of each division in the state, as worked up at that time?

A. I took great pains to explain that to Mr. Oliver so you would understand it.

Q. I don't care about that, Mr. Hamilton. You explain
262 it to the Court.

A. Most emphatically no.

Q. How did he work up September?

A. The division charge—or, rather, the charge reported by the division superintendent in the period you refer to, did not originate with him, on the Arkansas divisions. We haven't a shop in the state of Arkansas. We have a roundhouse at Thayer, a small one at Harvard, one at Hope and one at Fort Smith. The heavy shop work for the state of Arkansas, as well as most of the other states, is done principally at Springfield; some at Kansas City; some at Memphis and some at Cape Girardeau. Car repairs and engine repairs at those central shops, and by far the major part of the repair cost of equipment are incurred there, entirely without the state of Arkansas, are "pooled" by the general superintendent to motive power. At least, they were at that time, and a car mile, engine mile, or appropriate unit assignment of each class of expenses made to operating divisions, or accounting divisions, which, with one exception, were the same in Arkansas. Those expenses were checked up by the superintendent and reported to the auditor—in other words, the general superintendent of motive power cleared his charge by spreading it over the operating divisions.

Q. That was based upon shop reports of all the shops upon the system?

A. Yes, sir, that is correct. So it is not a division charge being spread, but a system charge.

263 Q. What was the difference between that and the plan followed subsequently?

A. It seems to me the very origin of those figures, as they got into the September accounts, made the plan that Mr. Douglas has followed consistently ever since October 1, 1907, the better plan, because when you first "pool" the general lump equipment repair charge and spread it over divisions and then again make a "pool" within a division boundary, as between states, you have a pool within a pool.

Now the plan followed in October, and to which the September figures here have been re-worked, in the $48,000 aggregation I spoke of, makes one pool right from the source and does not take "two bites to a cherry."

Q. That puts the entire system on an equality?

A. It should on equipment repairs.

Q. Whether it should or not, does it?

A. Yes, sir, it does, car mile for car mile and engine mile for engine mile.

Q. And that assumes the expense of this item in Arkansas is exactly the same as every other in the system?

A. Per car mile and per engine mile, but not in the state in total.

Q. What is that?

A. It assumes the same expense of repairs per car mile or per engine mile in Arkansas as any other point on the railroad. But it does not assume the same total expense in Arkansas.

Q. But it assumes the same per unit in Arkansas as
264 throughout the system?

A. Yes, sir.

Q. It assumes that the locomotive repairs in Missouri are the same as the locomotive repairs in Arkansas?

A. Yes, sir, per mile.

Q. And the same way with the cars and other equipment included in this item?

A. Yes, sir.

Q. That was on work equipment: Now, on this other account I mentioned: "Engine house expenses, road fuel for road locomotives, passenger fuel for road locomotives, freight. Fuel stations, operation of?"

A. Yes, sir.

Q. That was another item made up by Mr. Douglas originally on the master mechanics' reports as to engine house expenses, fuel reports as to fuel for road locomotives? That is for both freight and passenger locomotives?

A. Yes, sir, that is correct.

Q. And also the operation of fuel stations?

A. Yes, sir. But the freight and passenger was treated separately as to the fuel.

Q. That was made up by district originally?

A. In September, yes, but not since then.

Q. Since then the system has been treated as a whole?

A. Yes, sir, and September, 1907, re-worked as to this $48,000, to a uniform basis.

Q. That assumed that the fuel expenses are the same in Arkansas as throughout the system, per mile?

A. Necessarily.

Q. And that the freight locomotive fuel consumption is
265 exactly the same per mile throughout the entire system?

A. Yes, sir—which is ridiculous upon its face.

Q. That is the basis upon which you make the exhibit?

A. No, sir. That is the basis upon which I equate to the actual figures obtained in 1913.

Q. But you get your original figures by working them out upon the assumption that the fuel consumption of freight engines in Arkansas and Missouri, and all other states on the Frisco system, is the same per mile of road?

A. That is, the figures, which are subsequently equated for the purpose of showing in these exhibits, are gotten up on that basis.

Q. Mr. Hamilton, I asked you to look into the question of the freight-in-transit charge for the four months' period; have you done so?

A. Yes, sir.

Q. I wish you would explain it to the Court, Mr. Hamilton.

A. Without wanting to be preverse, Judge Hill, I don't know just what it is you want me to explain.

Q. I think I asked you on the former hearing if you do not carry upon your books an account for freight-in-transit?

A. Yes, sir, we do.

Q. You did not have the information then before you, and, as we were taking an adjournment, I asked you to look into the matter and report back at this hearing what you found in that regard?

266 A. The freight auditor of our railroad, during the four months ended December 31, 1907, and for some years prior to that time, and at every subsequent month since, down to the present date, has consistently handled his credits to the freight revenue in the method that I will detail for you here:

We handle our local freight accounts upon what is known as a "forwarded basis," and by "local" I mean way-bills made by the St. Louis & San Francisco Railroad agents, destined to points upon that line. By a "forwarded" basis I mean that we credit in each month to our earnings, on local business—and I do not mean intrastate, I mean local to the line—every dollar that is billed forward from any station on our line to any other station on our line, the way-bill for which is dated within that month.

The other side of the proposition is the receiving agent: Not all of the freight way-billed in a given month reaches its destination on our rails in that month; therefore, we cannot charge our agents with the collection of the revenues on the way-bills which have not reached them, but having credited all of the revenue to our freight earnings we have to charge somebody until the agent gets hold of

those way-bills in transit and collects the money, and we set up that account as "freight-in-transit."

The credit side, with which we are concerned here—that is, the credit to our earnings and income account, embraces each
267 month of local business, every dollar of revenue covered by every way-bill local to our line, dated within that month. That is the system, Judge Hill.

Q. How is that carried out on your books?

A. I have just explained.

Q. Take this four months' period: You have a copy of the statistics?

A. Yes, sir.

Q. It begins with freight earnings, from your statistical record and of your entire system, $2,241,207.58?

A. Yes, sir.

Q. Then there is a deduction of $34,590.98 for switching?

A. Yes, sir.

Q. And then there is a reconciling or balancing figure of $3,-987.99?

A. Yes, sir.

Q. Leaving a deduction of $38,578.97 to come from the original freight earnings, making a balance of $2,202,628.61?

A. Yes, sir.

Q. Is that correct?

A. That is the month of September, 1907.

Q. Yes, I should have read that.

A. Yes, sir.

Q. You assign 12% of each of those to Arkansas?

A. Oh, no, sir.

Q. No, I am wrong about that: You assign actually to Arkansas the earnings and 12% of this balancing figure to Arkansas?

A. That is correct: that is, this memorandum shows 12%, but we assigned the amounts that you have referred to, which you
268 have in your memorandum there. In this particular month we assigned of that balancing figure, as a portion in Arkansas, $477.36.

Q. That is 12%, isn't it?

A. I haven't figured it out.

Q. You will find this 12% on each of the months following?

A. That is a road mile pro-rate.

Q. I presume so.

A. That is what it is.

Q. I wish you would explain that reconciling or balancing figure, $3,987.99, of which 12% is assigned to Arkansas to be deducted from the actual freight earnings.

A. To be deducted, if you will, from the actual gross freight earnings. There is a distinction there, because the account you referred to, $3,987.99, of which $477.36 was carried over in Arkansas and deducted from earnings, represents overcharge claims paid and refunded to shippers, so that the actual earnings are represented after the deduction of that figure. The first figure you mention is the gross.

Q. That reconciling or balancing figure represents overcharges paid to the shipper?

A. And relief of agents on uncollectible items.

Q. Is that actual or is it estimated?

A. In each month it should represent the actual payments, or the actual vouchers passed through the Company's records. I made an investigation of these four months in response to your inquiry when we were here last, and I find that in working up his statistical
269 assignment to Arkansas in September, October and November, all of the vouchers which had gone through the auditor's record were not handled by the statistician. When it came down to December 31, he took in what had been omitted in the prior months, and I do find that within a few dollars the total of the deductions of that character in these four months agrees with the total audited claim vouchers and agents' relief taken up by the Company, either as a cash disbursement or relief of agents, in the months of September, October, November and December, 1907. Unfortunately, the statistician (who is not the auditor and does not keep the Company's accounts) got the bulk of it into the last month, but in the four months' period it is very close, within a few hundred dollars of the actual amount paid out.

Q. What is the total of the four months?

A. $393,608.01, on the entire railroad.

Q. 12% of that is assigned to Arkansas?

A. Yes, sir; a road mileage pro-rate.

Q. Does this cover over-charges and switching and taking up draft authorities, other than loss and damage?

Mr. Moore (to Mr. Mill): Taking up what?

Mr. Hill: Draft authorities.

A. "Draft authorities" is another way of paying a claim, that is, the same as paying a claim voucher. It does not cover switching, as I understand it, except as we relieve agents of switching, but switching is shown as a separate item.

270 Q. There is a switching item in there?

A. Yes, sir.

Q. That is, where the switching is charged to an agent and not actually paid, but absorbed, or something of that kind?

A. No, sir, where we absorb connecting line switching and he pays out cash and gets relief by a voucher. You will find that whole thing discussed, but not with reference to figures, in Exhibit No. 4, setting out what the auditor——

Q. What is that?

A. That is all discussed in Exhibit No. 4, Judge Hill; set forth in detail except as to figures.

Q. The total reconciling or balancing figures, as it is called on the books, for the system, for the four months, is $393,608.01.

A. That is what it is called in our statistician's record, but on the books it is shown as claim vouchers and agents' relief, actual payments.

Q. 12% of that was assigned to Arkansas, which, according to my figuring, is $47,231.76?

A. That is correct. That is a road mile pro-rate of the whole amount.

Q. What do you mean by "road mile," the mileage of the entire system?

A. Versus Arkansas, yes, sir.

Q. I believe those are the only statistics that I will bore you with at this time. I was looking to see if there are any more so that I could get them all in at "one fell swope."

I want to take up the formula, but if we are going to adjourn at 12 o'clock, I would suggest that we take it up after lunch
271 rather than go into it for only a twenty minute discussion.

At this point recess was had until 2 o'clock P. M.

No proceedings were had and a further adjournment was taken until tomorrow, June 23, 1914, at 9:30 o'clock in the forenoon.

272 LITTLE ROCK, ARK., June 23, 1914.

Met pursuant to adjournment as above on Tuesday, June 23, 1914, at 9:30 o'clock in the forenoon.

Present: Same parties as heretofore.

The following proceedings were had:

Cross-examination of Mr. T. A. Hamilton resumed.

By Judge Hill:

Q. We were discussing yesterday the reconciling figure which you explained as being made up of over-charges and matters of that kind, on which the agent was entitled to relief, because the amount was not collected and that went as a debit against the total freight?

A. Yes, sir.

Q. I see from an analysis of those figures that Arkansas is assigned 12%, which I think you stated was a mileage pro-rate?

A. Yes, sir.

Q. These debits against earnings are actual, aren't they?

A. Yes, sir, they represent actual refunds.

Q. On the one side is the actual earnings taken from your way-bills.

A. That is correct.

Q. And on the other side is a debit made up on a road mileage pro-rate of the mileage of Arkansas as contrasted with the mileage of the system?

A. That is correct.

Q. I believe you explained in Exhibit No. 4 that testing those figures out in 1913, there was a difference of only one per cent?

A. On the intrastate freight business, yes, and less than that, as I recall it, on the interstate. That is to say, in the year ended
273 June 30, 1913, we did not in preparing our Exhibit No. 22, make this arbitrary road mileage prorate of these adjusting and refunding figures. We, as set forth in Exhibit No. 4, analyzed each of them, attached every over-charge refund to the actual road movement, to the way-bill to which it belonged, made a deduction of

overcharges, for instance, on business from Fort Smith to Fayetteville, from the Fort Smith-Fayetteville gross revenue, worked that out in detail for 1913; and we found that the result, as you have just stated, came within one per cent of the result by Mr. Douglas obtained by making this arbitrary pro rate; so we argued that was a fair indication of the relationship between the two methods.

The Court: What do you mean by one per cent? Eleven instead of twelve, or one per cent of the twelve per cent?

A. No, sir. Say, if you will, that the Douglas figure made on this arbitrary basis would be 99% or 101% of what we got by an actual pro rate.

Q. Then it would be only 1% of the 12%?

A. No, sir; the 12% refers to the adjustment of one item. But I am speaking now of the total revenue assigned to Arkansas. Mr. Douglas' method in that total assignment in the net differed only one per cent from our detailed method.

Mr. Hill:

Q. If that is true, the debits against earnings, why is not the same proposition true of the actual earnings?

A. If what is true, Judge Hill? I must say I do not understand the question.

274 Q. I say if you can get your debits against earnings by a mileage prorate, why not get your earnings by the same method?

A. I have not the faintest notion what result that would have brought. I have just explained what we have done here. We made an actual analysis for an entire year, handled every way-bill, every correction, every over-charge claim and adjustment, and came out within one per cent of the results of Mr. Douglas' arbitrary methods.

Q. You assume that because in 1913, it came out within one per cent of the arbitrary method, you were justified in using the arbitrary method in 1907?

A. Yes, sir.

Q. Now my question is, if the debits against revenue could be safely apportioned on an arbitrary basis, which is road mileage, why not take the revenue and assign that on a road mileage basis? What would be the difference?

A. You understand there are two classes of revenue involved here: One is intrastate and the other is interstate. Nobody in his senses would think of making a road mile pro rate or any other kind of pro rare of the system total intrastate earnings. They localize themselves to the state, automatically.

Q. I am speaking of interstate.

A. We have done that.

Q. You have taken road mileage pro-rate to get your interstate?

A. No, sir. We have made a terminal allowance at both ends.

275 Q. You get your figure to start with on road mileage?

A. Yes, sir, the only way you can pro rate interstate business.

Q. And then you equate it to cover what you considered the terminal cost?

A. And add an allowance of mileage to cover the terminal cost. The only way interstate revenue can be pro rated between states is on a mileage basis. Surely, there is no ground for the assumption that a road earns any more on any one given mile of road haul than on another given mile of road haul.

Q. Does not the density of traffic affect that?

A. No, sir, that would affect operating expenses.

Q. Doesn't it affect earnings?

A. In a way, yes.

Q. In a very material way, wouldn't it?

A. No, sir. It would if we followed Mr. Douglas' method—not the one we have used in our 1913 figure.

Q. It would affect it very materially. Taking the basic figures as he took them, wouldn't it?

A. No, sir, I think the results we have got here prove that his method, as to its results, was very close to ours.

Q. The density of traffic on the Frisco System—there is a very much greater density in Missouri and Kansas?

A. Missouri, Kansas and Alabama, but the greatest in Kansas between the Fort Scott and Kansas City.

Q. And there is a greater density of traffic in Arkansas than in Oklahoma?

A. On some lines, yes, and on some, no.

276 Q. The mileage in Oklahoma is 1500?

A. Yes, sir.

Q. And it is less than 600 in Arkansas?

A. 597 and a fraction.

Q. Following the question about assigning on the 12% basis, I find from an analysis made by Mr. Oliver of the reconciling figure of the four months' period, that if the actual figures for the system are taken, and the relation of the earnings in Arkansas to them made up from the way-bills is taken, it makes a difference of $5,610.66, by reason of using 12% when the actual relation of earnings for each of these months is a varying per cent: Have you looked into that?

A. No, sir. (Mr. Hamilton here consults memorandum.) You mean in effect, then, that Mr. Oliver has taken these deductions from freight earnings on account of over-charges, refunds and relief to agents on account of uncollectible matters and similar items, and assigned them as between Arkansas and the balance of the system on a gross revenue basis: Isn't that what you mean?

Q. Not quite. Take it for September: The gross revenue on the system (omitting the figures) and the gross revenue for Arkansas (omitting the figures) are in the relation of 9-77?

A. Yes, sir.

Q. And for October they are 10-13?

A. Yes, sir.

Q. And for November 9-62?

A. Yes, sir.

Q. And for December 10-94?

A. Yes, sir.

277 Q. If the over-charges that you have explained would follow the earnings, then these deductions from the earnings, if made upon the relation of the earnings one to the other, would be in the percentage I have named: Is not that correct?

A. I have not proved your figures, Judge Hill, but I assume they are correct. But the principle, as I understand, upon which you proceeded in arriving at that result, was that you found out, as these percentages show, what percentage the gross revenue assigned to Arkansas was of the total gross revenue of the entire system.

Q. That is it.

A. You have made that division of these over-charge refunds on that gross revenue basis?

Q. Yes.

A. Yes, sir, on that basis your figures are all right.

Q. $5,610.66 less than it would be on the 12% arbitrary basis?

A. Yes, sir, if you substitute gross revenue division for a road mileage pro rate.

If I may append an explanation I would like to do so, if you have no objection.

You understand we made no such assignment on a road mileage basis of these items in 1913 and that we made an actual apportionment of them, each item treated individually, and attached to its own specific road haul movement, and that came within one per cent of the result Mr. Douglas has here on a road mileage pro-rate.

278 Q. Mr. Hamilton, please turn to Exhibit No. 1, the formula, on page 2, gives a diagram of the plan followed?

A. Yes, sir.

Q. Take station "D," which is an illustration of a branch line and a parent line meeting a main line?

A. Yes, sir.

Q. A passenger originating, say at a point on the branch line, the end of the branch line, and going to "C" on the main line, would pass through "D" and change cars and use the station facilities at "D," wouldn't he?

A. Your question assumes the branch line train stops at "D"?

Q. It assumes it stops at "D."

A. Yes, sir, necessarily the passenger would detrain there.

Q. He would get off that train there?

A. Yes, sir.

Q. With all the casualty risk attendant on debarkation from trains?

A. Yes, sir.

Q. And he would use your depot facilities?

A. He might or might not, but the presumption is he would.

Q. If he had baggage it would be transferred there?

A. Yes, sir.

Q. He would embark upon the train of the main line with the usual casualty risk attendant on the embarkation of passengers?

A. Yes, sir.

Q. And he would be carried to "C"?
A. Yes, sir.
Q. All of the service he received at "D" would be considered line expense, according to your plan, wouldn't it?
A. Yes, sir.
279 Q. Now, suppose a passenger started on a foreign line and came into "D," transferred there to the main line, and was carried to "C" on the same train with the passenger originating on the branch line: Except some office expense, would not the service be identical?
A. It might or might not.
Q. Why wouldn't it be?
A. You have just named the one exception I recall at this moment. There might be some expense incurred with the ticket agent that the other passenger would not incur.

The Court:

Q. Please speak louder, Mr. Hamilton, I cannot hear you.
A. There might be some expense in connection with the ticket office that the passenger transferred from the branch line to the main line would not incur, which would be incurred by the passenger coming from a foreign line and going along over the main line.

Judge Hill:

Q. That expense, if any, would be entirely in the office, wouldn't it?
A. Yes, sir.
Q. What would it be?
A. Oh, I dare say it would be negligible.
Q. The service of the baggage and the use of the platform and station facilities, and the attendant risks, would be identical with that of the passenger coming from the branch line?
A. Yes, sir.
Q. Yet these expenses attendant on the passenger originating on the foreign line would be classed as "terminal," wouldn't they?
280 A. If he came on our line at that station, yes.
I would like to say, as it might save some questions, perhaps, that this diagram is illustrative, but we, in preparing these Arkansas figures, have made no attempt to segregate main line and branch line expenses. Our branch lines in Arkansas are a negligible quantity, and we have treated our road in the state as a whole. The object of a main line and branch line division, as suggested here in the formula, was to segregate the expense of the branch lines, because it is known, as a general thing, that the traffic on these lines is light and, therefore, more costly per unit, and it is usually short haul traffic, and very often all intrastate traffic; and a segregation of branch line expense and the apportionment of it to the traffic on the branch line itself would increase the cost of the intrastate business—as a usual thing.
Q. That is an assumption?

A. We have not done that here. We have made no distinction between branch line and main line.

Q. That is a pure assumption, that the cost on the branch line is greater than on the main line?

The Court: What difference would it make? He says he has made no distinction. It is immaterial so far as this case is concerned.

Mr. Hill:

Q. Take a ton of freight, one originating on a branch line and one on a foreign line, each being hauled into "D" and transferred to the main line at "D." Each being shipped without the
281 state; the one ton originating on a foreign line and the other ton originating on the branch line and each being hauled to "D" and there transferred to the main line and hauled without the state: What would be the difference in the service?

A. None, none whatever.

The Court: Let me ask a question there. Is there no charge for the use of the foreign cars after it gets on your line?

A. Oh, yes; we pay 45 cents a day for it.

Q. If it comes in in your own car from the branch line, that would not have to be paid out?

A. No, sir.

Q. There would be only the wear and tear on that car?

A. Yes, sir.

Q. And the same thing in returning it?

A. Yes, sir. But that is not treated as an operating expense item.

Q. What is it charged to, rental?

A. Yes, sir, "Hire of equipment", and it is treated by the Interstate Commerce Commission classification as a deduction from income. It makes good a capital deficit.

Q. In the final result it makes a difference, as an expense of the main line?

A. Yes, sir. Of course, foreign cars and our own home cars are inextricably mixed all over the road, the main and the branch line, used in common. You are just as likely to have your own car comming to you from a foreign line, in the illustration you gave.

Q. But the expense of the foreign car would be infinitesimal as compared with your own line?

282 A. As a matter of fact, the freight cars of this country are used as common property. I dare say we have today more foreign cars on our road than our own cars—and the reverse may be true tomorrow.

Q. Let me ask you another thing: Are there any more entries to be made if a car comes from a foreign line connection than if it comes from your own branch line?

A. Yes, sir, there are. So far as station work is concerned, there is more clerical work on a shipment or a car received from a foreign line than on the handling of a shipment coming from a branch line to our own main line.

Q. So far as the Auditing Department is concerned, is there more work where it comes from a foreign line than if from your own branch line, making the various entries and keeping the account of what is due to them?

A. No, sir; I think there is very little difference in keeping interline accounts for freight, foreign business and home business, dollar for dollar. But as to the expense at the station, there are two classes of expenses, the clerical and the platform or the warehouse. One is the handling of records and accounts and the other the physical handling of freight, trucking it around.

Q. That is the less-than-carload?

A. Yes, sir.

Q. Don't you have to do the same thing on the branch line freight, unloading less-than-carload?

A. Yes, sir, that is true. But we do not enter it in that junction station record, except as passing.

283 Q. That is clerical work. But so far as platform work is concerned, there is no distinction?

A. No distinction whatever.

Mr. Hill:

Q. It is a little digression, but while the Court's mind is on that subject I want some information as to special equipment cars. Your road carries, as well as all other roads, special equipment such as refrigerator cars and oil tank cars and various things of that kind: What is the system—I expect that is governed by contract—but what is the usual contract between your road and special equipment companies?

A. It varies. To some private car lines we pay mileage and with others we have some equipment we use for which we pay a per diem rental which is not the per diem of 45 cents prescribed by the American Railroad Association. It is an item made up of six per cent on the value of the equipment and some allowance for depreciation. Those things vary.

Q. I know that. But I want to get just the general plan of it: You have a mileage basis for the use of those cars on your line which you pay to each of the owning Companies?

A. Yes, sir. They are very few now in number. Most of the private lines have come in on the A. R. A. agreement. We have a few.

Q. What difference is there in the cost of maintenance of cars like tank cars, refrigerator cars and other freight equipment—I am speaking of freight, of course.

A. Some are members of the Master Car Builders' Associa-

284 tion and are handled under the Master Car Builders' rules, and others are not. I would like to say that I am not entirely posted on that in detail.

Q. I don't care about the details, Mr. Hamilton. I just want a general plan about that. Suppose you wreck a refrigerator car out here, who pays for that?

A. If it's owners were members of the Master Car Builders' Asso-

ciation or had subscribed to the Master Car Builders' agreement, and we wrecked the car we would be responsible for the damage. But if it were proven that the wrecking of the car was due to an owner's defect, so known——

Q. In other words, if that particular car caused the wreck?

A. No, sir, not particularly.

Q. If that particular car caused the wreck you would not be responsible: Isn't that the rule?

A. No, sir.

The Court: I understand it that if the car is damaged by reason of some defect in the car itself, or some fault with it, the owner bears the loss; but if it is caused by the negligence of the road, then the road bears it.

Mr. Hill: There is a further provision in the contract. If that car causes that damage the road is not responsible for it?

A. That is the general principle.

The Court: If a car was wrecked by negligence of the road——

Mr. Hill: No, sir, but suppose it had a defective wheel and
285 threw the train off the track, then this road would not be responsible for that?

A. Except that wheel does not come under "Owner's defect." We are supposed to catch that at the junction points. But there are hidden defects, structural defects perhaps, and the owner is responsible for that.

Q. Those are negligible so far as practical operation is concerned?

A. No, sir, they make up probably the major portion of our repair cost of our cars on foreign lines.

The Court: It is practically the common law liability.

Mr. Hill: I presume so.

Q. Ordinary maintenance and road repairs are borne by the railroad?

A. Yes, sir. We make repairs that occur on our road.

Q. And the repairs to special equipment is thrown into your "pool" like your own cars or foreign cars used by you, aren't they?

A. Yes, sir, necessarily.

Q. These are made out and billed against the owning company and become a credit on your equipment account?

A. That is it, exactly.

Q. I believe you said, Mr. Hamilton, there would be no difference in the station operating expense on foreign and home line cars?

A. In operating expenses?

Q. There is some difference in the office expense?

A. Yes, sir.

Q. I think you stated that difference would be negligible?

A. Not on freight.

286 Q. There would be a difference on freight?

A. Quite a difference there.

Q. State it.

A. On a shipment coming to our line from a foreign line, if it were way-billed through to its destination, a junction record would have to be taken and a report made to the auditor concerning it. If it originated, so far as the billing is concerned, at that station—that is, was not way-billed through, but came to us on a local transfer, the agent would have to way-bill it and run that way-bill through his accounts. On a shipment which came from the branch line, aside from taking, perhaps, a passing record of it—and we do not do that at this time—he would simply have his warehouse force transfer it from car to car.

Q. If it were a carload shipment the switch engine would transfer the cars?

A. Yes, sir, and put it in the train.

Q. You stated that at this time you do not make any office transfer from branch lines: How was it in 1907?

A. I am not clear as to whether the agent keeps other than his tally sheet on freight that comes out of the car. It is a very minor item of work.

Mr. Moore: Will you please let me ask a question there?

Mr. Hill: Certainly.

Mr. Moore:

Q. You said there was quite a difference in the expense at
287 the transfer station of the handling line; quite an increase in charges in transferring freight from a foreign line at a junction station: Is that provided for in your formula, for terminal expense?

A. In our application of the formula, yes, it is taken care of.

Mr. Hill:

Q. There would have to be some record in station "D" of the freight passing from the branch line on to the main line, wouldn't there?

A. Less-than-carload, he would keep the tally sheets. But it enters into his station accounts in no way. It is simply a record for loss and damage, or for tracing freight.

By the Court:

Q. I understood Mr. Hamilton to say there is no difference in the operating expense and the only additional expense in foreign line business is the small item of making out the new way-bills. Otherwise there is no difference.

Mr. Hill: And against that they would have to make a tracing record in the office for branch line shipment.

A. Please let me explain that.

The Court: Of course when they make out new way-bills from the foreign line they have to check it up to see that the freight is delivered. He says the only difference is making out the new way-bill in the one instance and in the other instance, it is dispensed with.

Mr. Hill:

Q. Under your formula here a shipment coming from a foreign line would be treated as terminal at station "D", and that
288 from the branch line would be treated as "line?"

A. No, sir.

Q. Why not?

A. Absolutely not.

Q. Why not?

A. The way we handle that is this—you will find it clearly set forth in the exhibits and in the formula. We take each station on our road in Arkansas by itself: We had the agent report for a test period—these two months of November and December—the number of tons of freight (I am speaking now of less-than-carload, I will take that first) which he received and which he forwarded, and by "received" and "forwarded", I mean which ended or began its journey on our railroad at his station. He also recorded separately the number of tons of freight he transferred from car to car. That is your branch line proposition. In making our division of station expenses we have handled that tonnage separately.

Q. I want to read you at page 2. "All expenses attaching to traffic passing through "D" station to or from branch line points is 'Line' ".

A. I was at great pains to state that we paid no attention to the main and branch line division. That is simply set down as a matter of illustration and information.

Q. If I recall it correctly, that same statement is repeated a great many times in the formula. Where is it modified?

A. Please show me where it is printed and I will probably be able to show you the modification. I do not recall it. In
289 answering your question and treating of the answer I have made, I would like to call attention to the item of expenses shown opposite Account No. 63, under the head of "Transportation, station employes" in Exhibit 15. You will find that is divided into four classes, clerical, freight houses, yard; cotton loaders and watchmen. The cotton loader proposition, I might explain and dispose of by saying that we employ men to load cotton, to watch cotton platforms exclusively, and we charge their expense to the cotton traffic; or, as it is all interstate with us, to the interstate traffic. You will find that item of $1,188.50 is carried out directly to the total of the interstate business.

As to the clerical expenses, which you will notice is $19,510.52, you will find that divided, as the Exhibit states, on the basis of the number of consignments of freight received and forwarded. We had our agents report the number of consignments of freight which originates at or terminated at their respective stations. That does not include the shipments which went through that station and were transferred from car to car. The number of consignments is the closest index we knew of upon which to divide clerical labor. It closely indicates the number of entries in the accounts, perhaps not the number of way-bills, but the number of entries which the agent and his clerks are required to make; so we divided that on the basis of the number of consignments.

Q. What would you call a "consignment," using my illus-
290 tration of freight passing from a branch line to the main line at station "D"?

A. A consignment is a single shipment from one shipper to one consignee.

Q. That would not be included in this division you are now speaking of?

A. Oh, yes, that is the basis of it.

Q. I am assuming that a shipment originated on a branch line.

A. Oh, pardon me. You mean on the branch line and did not originate or terminate at this junction station?

Q. But that is my whole question.

A. I was just coming to that, Judge Hill.

The second item, freight house expenses, $3,622.38. That is where your tally is made of the freight that passes through the station. The warehouse foreman makes it. I put in nine years in the freight stations and I am familiar with the practice. They make a tally of the stuff that passes through but does not enter into the accounts at the station.

Q. Is that true if it passes through from the branch line at the junction point?

A. It is the same if it comes from a foreign line or a branch line. That is the tally. I had better explain so it will be clear what that is.

A car of less-than-carload freight comes to a station for transfer, whether it comes from a foreign line or another branch of the same road, the practice is the same. The way-bills for that car's contents are given to the freight house foreman. He makes a tally sheet showing what freight should come out of that car. It roughly shows the
name of the consignee, the way-bill number, and so many
291 packages, so many boxes of soap or shoes, and so on. He turns those way-bills back to the office. He uses that tally sheet to reload the freight in the other car and checks it in. He keeps that record so if a claim or tracer comes along, he knows what is transferred from car to car.

That is all that is done with the freight that comes through from the branch line at that station, except possibly handling the claim papers in adjustment later on.

The same service is given the freight that comes through that junction point from a foreign line.

But there the analogy stops. The balance of the expense does not attach itself to the freight that comes from the branch line.

Q. This item of $3,600 freight house expense is the only one in which any part is attached to the freight coming from the branch line?

A. Yes, sir.

Q. I don't quite understand your illustration, whether it was less-than-carload or carload, would it be the same thing in any event?

A. Freight house would not include carload.

Q. Suppose it was a carload that came from a branch line?

A. That is the next item, "Yard expense."

Q. That would be divided on yard expense proposition, which is $1,016.00 in your account, "Station account:" Is that correct?

A. No, sir, that is not all of it.

Q. I was looking at Section 63.

292 A. I wanted to make an explanation there if I may.

Q. All right.

A. Under the head of "Station employes" the third item is that of yard expenses, $1,016.37. A little further down you will notice accounts 67 to 78 inclusive, "Yard service," $12,900. That is switch engine expenses in the yard. It takes the two to handle the carload business.

Now, your yard expense of $1,016.37, which is office yard expenses, the clerical part of it, if you will, the exhibit shows that is divided on the basis of the number of loaded cars received and forwarded at that station. That is intrastate and interstate, according to their contents.

Now, that is also true of the "yard service;" that is the wages of the yard men, the engine men, and so on, that $12,904 item.

Q. Then a car received from the branch line would be counted a car in and out of that station?

A. No, sir, it is a line proposition with us.

Q. And no part of this $12,904 would be ascribed to the handling of cars at station "D" received from a branch line?

A. Not of this $12,000.

Q. That was my question.

A. That is not the whole story. There is the line expense.

Q. Where is your "line expense?"

A. That is the very essence of this whole scheme.

Q. Explain it.

A. See Exhibit No. 14. If you will look at Exhibit 14, you will see items 67 to 78, "Yard expenses," $14,977.75. You will

293 find that that is divided between local and through trains first; and then sub-divided on the basis of the contents of those trains, state and interstate, net ton miles. That was the difficulty in the Iron Mountain proposition.

The expenses of switchmen, switch engines and so on, the outdoor work in the yard, and the expenses of the yard clerk, has not been treated in these exhibits in the lump.

The terminal function of the yard organization is entirely different under this formula from this line function.

The line function consists in the making up and breaking up of trains which start from or stop at a given station.

The terminal function, the handling of cars which are received for forwarding or arrive for delivery at that point.

Now, your car coming off the branch line, that is, your full carload, would be handled from the branch line train, and that is a line expense. If it is put into the main line train it is another line expense. It is not handled by the station platform force, but it is handled by the yard force, and the charge for that is here in Exhibit 14 as a line expense.

Q. Let me see your basis for arriving at that. As I understand, that is a division between local and through trains, isn't it?

A. Yes, sir, that is the service rendered trains and not a service rendered in the receiving and delivery of freight at that point.

294 Q. How would you get into the account a car received from a branch line at station "D"? Would it be counted a car into station "D" and a car out of station "D"?

A. No, sir. It came in to station "D", let us say, in a local train. It was part of the consist of that train. And in this division was here charged against that train. It went out of station "D", perhaps in a through train, and as far as it traveled in that train, its use of that train is reflected here, and it is charged against that through train.

That is done in this way: The local trains and through trains separately, for this entire period, have been analyzed—that is, their consist has, and we have prepared figures which represent the gross ton miles, the entire weight of the trains, the local trains and the through trains. We have divided these line expenses on the basis of those gross ton miles. That is, the use that the local train and the through train got out of the railroad. Not only of the track over which it ran, but all the facilities of the railroad which enabled the trains to be made up and broken up and proceed on their journey. That is, this yard "line" proportion is distinctly a part of the service performed in getting those trains over the road, just as much as a water tank or a coal chute that serves them out on the line.

Q. I don't think you reach my point, quite. A car comes into station "D" on a local train. There is no terminal charge at station "D" put against that car.

295 A. No, sir. There is a line charge.

Q. The car is transferred at station "D"?

A. Switched, you mean?

Q. Yes, off to another freight train, either a local or a through train?

A. Yes, sir.

Q. There is no terminal expense put to that?

A. There is a line charge for the expense——

Q. I understand, but there is no terminal expense to that?

A. There is no terminal within the meaning of this formula, no terminal in that yard.

Q. There is no terminal charge put against that car at all?

A. Not as terminal is interpreted in this formula.

Q. There is this line expense, as you have just explained?

A. Yes, sir.

Q. That enters into both of the cars?

A. Yes, sir.

Q. If that car came from a foreign line to station "D" there would be a terminal expense to it at "D"?

A. That is terminal, yes, but not line. Because it originates on our line there, and the other did not.

Q. The service would be the same, with the differences you have heretofore explained?

A. Within reasonable limits I assume so, yes.

Q. The shipment is treated as terminal for the same service at station "D", that the branch line shipment gets at station "D"?

A. Yes, sir, a shipment coming from a foreign line is treated just as if it were loaded there by a shipper at that point.

296 There is no difference so far as we are concerned. It starts there.

Q. The line expense you have explained in detail, as attaching to a shipment coming from a branch line would also be attached to a shipment coming from a foreign line, as it moved out of that station?

A. As it was put into a through train.

Q. Or a local train either, wouldn't it?

A. That is true.

Q. Suppose two shipments coming into Fort Smith on the Mansfield branch of the Frisco, one going to Monett, Missouri, and the other transferred to the Kansas City Southern, going to some point on its line, without the state, the service at Fort Smith on those shipments would be practically identical, wouldn't they?

A. I assume so. I do not know the track layout.

Q. You know the Mansfield branch comes in there as a separate train?

A. Yes, sir.

Q. And they have interchange tracks with the Kansas City Southern?

A. Yes, sir.

Q. Those shipments would receive at Fort Smith practically the same service and incur the same expenses. To each of them there would be certain line expenses attributed, according to this formula?

A. Yes, sir.

Q. Which would be identical?

A. Yes, sir, that is correct.

Q. To the shipment going to the Kansas City Southern

297 there would be certain terminal expenses attributed?

A. Yes, sir, that is correct.

Q. Which would not be attributed to the other shipment?

A. That is correct.

Q. I presume these allowances which I find in the exhibits, on cotton loaders and watchmen, were intended to cover matters which developed in other rate cases, that there were many handlings of cotton in the state, weren't they?

A. No, sir, they were simply intended to set forth the facts in regard to the employment of those men, which is the cars and handling of cotton which we treat and charge as an interstate commodity.

Q. That is on Exhibit No. 15?

A. Yes, sir.

The Court:

Q. Cotton is all charged to interstate?

A. Yes, sir, all interstate.

Mr. Hill:

Q. There is no intrastate cotton. I believe there is a trifling amount on the Iron Mountain at Helena, but not any on the Frisco road, is there, Mr. Hamilton?

A. Not any on our line.

Q. Under item 63 I see you have "Cotton loaders and watchmen?"

A. Yes, sir.

Q. Do you keep men specially employed for that proposition, or is that a time proposition?

A. No, sir, that is actual. We have the payroll, which shows that those men were actually employed as cotton loaders and cotton watchmen.

Q. That was the total amount for the state?

A. Yes, sir. Our cotton traffic is not very heavy.

298 Q. How much is it in total, do you know?

A. No, sir, except I know it is not one of our major commodities.

Q. I suppose you handle lots of cotton on the eastern Arkansas line?

A. Yes, sir, but the haul is very short.

Q. You are very familiar, I know, with the way cotton is handled. It is being picked up usually as a less-than-carload commodity at stations and put on the local trains and then carried into a concentrating or compressing point, it is compressed there and reloaded and shipped out, usually on a through train to an eastern point?

A. That would depend on the location of the compress.

Q. But that is the general run of cotton movement in this state?

A. Yes, sir.

Q. There are three terminal handlings on cotton in the state, speaking as a general proposition.

A. At the originating point, into the compress and out of the compress, yes, sir.

Q. That amounts to three terminal handlings in the state?

A. Yes, sir.

Q. Under your division of terminal expenses here, have you provided for that?

A. Oh, yes.

Q. In what way?

A. You will notice first, there is some expense here in this Exhibit No. 15. That is warehouse or freight house expense and that has been divided on the basis of the number of tons received and delivered at stations.

Q. What item is that?

299 A. No. 63. Now, every time a ton of cotton got handled that ton is counted in there. It is counted first by the agent——

Q. That is at the originating station?

A. No, sir, on all of them, all three times. I was just about to explain that.

Q. Go ahead.

A. At the originating point where the cotton was loaded the agent reports that and it is included here as a ton forwarded. When it comes to the compressing station the agent reports it as a ton received. When it is shipped out the agent reports it as a ton forwarded. That is three times in this freight house division.

Q. Suppose it comes in from a branch line?

A. He reports it transferred from car to car, if he transferred it.

Q. Where would that account be?

A. That would be in the line expense, Exhibit No. 14.

Q. That would not be in the terminal expense?

A. No, sir, because that is a line expense.

Q. Suppose it comes in, not in a car, but as an individual bale, where would it be taken care of?

A. The same way as I have just described.

Q. I thought you said there was a difference in the handling of less-than-carload and carload on branch line points, such as station "D."

A. I thought your discussion was as to less-than-carload freight.

300 Q. I am asking as to both.

A. You have here all tons of freight received and delivered at stations.

Q. That would be less-than-carload?

A. Yes, sir, and that includes everything that was transferred from car to car.

Q. Then suppose there was transferred a car, that would not enter into terminal because it would enter into line cost?

A. I misunderstood you on that. You spoke of a car coming from a branch line and I went to the train proposition. You are speaking now of a ton coming from a branch line.

Q. Suppose a bale of cotton comes in on the Mansfield Branch at Fort Smith and there is delivered to the compress.

A. Yes, sir.

Q. Where is the terminal expense attached to the handling of that bale of cotton at Fort Smith?

A. It is in the tons handled at Fort Smith.

Q. Account 63?

A. Yes, sir, freight house proportion.

Q. That would be the freight house proportion of that $3,600.

A. No, sir, that is all freight house expense. Unless the agent runs his own freight house as well as his station. Then it is charged to freight house separately from office service.

Q. That is a one man station?

A. Yes, sir.

Q. Then the freight house service to that bale of cotton would be in this account, $3,622?

A. Yes, sir, and divided as shown further over in the ex-

301 hibit on the basis of the less-than-carload net tons received and delivered at stations.

Q. Would the branch line less-than-carload be included in the receipt and delivery at stations?

A. Yes, sir.

Q. And the balance of the line the same?

A. Yes, sir.

Q. If that was received from the Kansas City Souther-, so far as this item is concerned, would it be the same?

A. If it were handled across the platform by the freight house force it would be included.

Q. Suppose a car were delivered to the compress, how would it be handled?

A. It would be charged with a portion of the terminal expense.

Q. That would be under the "clerical" $19,000?

A. No, sir. First, under "Yard time of station force;" second, under "Yard service," Accounts 67 to 78.

You will notice those two items are divided on the basis of the number of loaded cars received and forwarded. That is not where we take care of the expense of freight house, where they handle the tonnage.

Q. Take for illustration a car of cotton received on the Mansfield Branch and the other on the Kansas City Southern: Where would be the difference in the charge of expense on that account?

A. You are assuming the car of cotton which came from the Mansfield Branch and went to the compress at Fort Smith. None whatever.

Q. That one and the one from the Kansas City Southern
302 would be treated exactly alike?

A. Yes, sir.

Q. And the expenses would enter into each of these accounts alike at that station?

A. I don't know just exactly what you mean by that. If the car came in and was delivered to the compress and counted as a loaded car received——

Q. Where is it counted? Here is "clerical service" $19,000: Would that car from the Mansfield Branch receive any portion of that service?

A. No, sir, but——

Q. Would the car from the Kansas City Southern receive any portion of that service?

A. I have not finished my answer. My answer should have been yes—I was in a hurry.

The exhibit shows that the clerical expense of $19,000 was divided on the basis of the number of consignments of freight received and forwarded. That was "a consignment of freight," be it carload or less-than-carload.

Q. And because that was forwarded out of the compress it would receive a portion of that service, would it?

A. Yes, naturally.

Q. I understood you to say a while ago that the consignments referred to do not include the branch line passing through?

A. But you are talking about concentration cotton billed into the

compress and billed out. That is the same as for the local delivery in Fort Smith.

Q. And so treated here?

A. Yes, sir, but the difference is that one is way-billed into
303 the compress for concentration and subsequently way-billed out; and the other is billed into Fort Smith for local delivery.

Q. Would not that cotton be way-billed before it got into Fort Smith?

A. Yes, sir, way-billed into Fort Smith and again when it leaves there. It is a separate and distinct proposition on concentration cotton. You bill your cotton into the compress and that way-bill rests there. Then you bill it out from the compress. It is a new way-bill. The only relation which exists between the two is the protection of the through rate from the point of origin. As to the clerical work there it is the way-bill in and the way-bill out and they are counted as two movements here.

Q. And counted also in this station "D"?

A. Yes, sir.

Q. Take a shipment of lumber originating on the Mansfield branch and one on the Kansas City Southern and each delivered to the Frisco at Fort Smith and each carried without the state: What would be the difference in this expense attached to these respective shipments, if any?

A. A shipment of lumber coming off the Mansfield Branch and being for delivery at Fort Smith, I take it?

Q. No, I say both going out of the state.

A. You mean going on from Fort Smith in another train?

Q. Yes.

A. A shipment of lumber coming from the Mansfield Branch would be taken from one train and put into another to go elsewhere over the Frisco rails and would get its proportion of line expense in the yard expense block, in Exhibit 14.

A shipment that came from the Kansas City Southern and
304 went out over the Frisco elsewhere, would get its proportion first of terminal expense and then of line expense, leaving the station.

Q. The line expense of the two would be identical?

A. No, sir.

Q. What would be the difference?

A. The shipment that went through Fort Smith on our own rails, the Mansfield shipment, would be charged with line expense according to the character of the train it traveled in, in and out of that terminal. The shipment which came from the Kansas City Southern would be counted as a terminal car received there for forwarding, and it would be recounted in the line expense according to whatever portion of the line expense was attached to the class of train in which it moved out of there.

Q. Assuming both went out in through trains?

A. The same character of line expense would attach to them leaving there, but the distinction is that the Mansfield car coming in you would have a line expense, and on the other you would have a

terminal expense. One originates with a connecting line and the other originates in our own train coming in.

Q. But the line expense, receiving it on the main line on the Frisco, on those two cars would be identical: Is that correct?

A. No, sir. The line expense attaching to their forwarding on the Frisco from Fort Smith would be identical if they moved out in the same kind of a train.

Q. Their terminal expense would be identical under this formula?

305 A. Coming into Fort Smith, a car coming in from Mansfield would not have a terminal expense at the Fort Smith yard. A shipment coming from the Kansas City Southern would have attached to it a terminal expense at Fort Smith, because it originated there and did not come in there in a Frisco train.

Q. Now take the formula, page 3: In making up and breaking up these trains there, Mr. Hamilton, you have explained somewhat the proposition, but I wish you would go into it a little more fully. It begins there, but, of course, runs through all these other accounts—"Maintenance of main and passing tracks, tracks at division or train terminals used exclusively, or nearly exclusively, in making up and breaking up trains at points where trains are started and terminated, in re-classifying and storing through cars and through trains and passing them through yards", etc.: That is the item I am referring to.

A. Yes, sir.

Q. That is treated as line?

A. Yes, sir.

Q. That division that begins there with the tracks—it runs all the way through your formula—treating the items that would be attributed to that in maintenance of equipment, transportation and otherwise, as line?

A. Yes, sir.

Q. I wish you would explain to the Court just how that division is made, and the reasons for it.

A. You mean this first "Maintenance of way" division?

Q. Yes, that will illustrate the entire proposition.

A. Or do you mean the general principle of the division between line and terminal?

Q. No, I mean the general principle of the maintenance of the tracks; that is the first item we tried under that, in making up and breaking up trains in division points.

A. I am afraid we are confusing two things. Do you
306 want me to explain this paragraph on page 3 of the formula, headed "Maintenance of line?"

Q. Yes, in that respect; I don't mean the whole formula.

A. Sir?

Q. In respect to these tracks for making up and breaking up trains, or classifying tracks?

A. Well, there are other things that enter into the line proposition from the maintenance of way standpoint. I don't know that we can take one piece out of the middle of it and explain it.

Q. Explain it in your own way. That is a point that I want you to discuss.

A. Heretofore in the preparation of figures for submission to the Court, in an attempt to segregate the expense of intrastate and interstate business, the conception that has been had of what was terminal expense has been largely erroneous. Accountants and others, on both the railroad side and the state side in these cases, have been accustomed to consider terminal expense as entirely comprised within the accounts which the Interstate Commerce Commission designates "Station expense" and "Yard expense." This formula (Exhibit No. 1) goes deeper than that. It was found, upon investigation, that there are many functions performed, the expense of which was in the Interstate Commerce "Station expense" and "Yard expense" groups, which were not in any sense
307 of the word the expense of receiving and delivering freight from the shipper and to the consignee, which, in the last analysis, is what terminal expense means.

It was found, on the other hand, that there were buried in the haulage expenses items of expense incurred by reason of the functions performed by through trains and local trains in lieu of yard engines, so that we could not accept the old definition that the Interstate Commerce classification of "Station Expenses" and "Yard expenses," as they grouped it, was all terminal expense; or, that the groups of "Train and engine service" set up by the Interstate Commerce Commission were all haulage expense. We found that in the yards and at the stations the yard and station organization performed a service which was incident to preparing trains to run over the line, or caring for them after they had run over the line, insofar as they contained freight—I am taking the freight side as an illustration—which came from beyond or was going beyond that station where the train stopped, and being merely an incident in the journey of the freight.

We found, on the other hand, that at stations out on the line of road the local freight train stopped and switched cars, placed them at the warehouse, placed them for loading or unloading, and performed the functions which a switch engine would have performed had there been enough business at that local station to justify keeping one there. So that that was a terminal service at that station, connected with the receiving and delivering of freight, which
308 was performed by a train, and that expense of the train had been charged, ordinarily, and heretofore, to the haulage service.

It thus became necessary to analyze what yard organizations and train service organizations did. We made a study of that, and it has been detailed here in Exhibit No. 2, and Exhibits 2-A to 2-K.

We made a study of the time which the yard engines devoted to what we consider line service. That is explained in connection with Exhibit No. 2-I.

We made a study of what the through trains and local trains did out on the line, which was properly terminal service. That is explained in connection with Exhibit 2-H.

Following that, and taking up this paragraph on page 3 of the formula, which is headed "Maintenance of Line," meaning in that sense maintenance of tracks and structures which are properly chargeable to line or haulage service—in some instances not whole structures, but portions of them.

The formula reads:

"Maintenance of main and passing tracks, tracks at division or train terminals used exclusively, or nearly exclusively, in making up and breaking up trains at points where trains are started and terminated, in reclassifying and storing through cars and through trains and passing them through yards."

That, so far as the freight service is concerned, is what we consider maintenance of way expense chargeable to the line or haulage service.

Does that answer your question, Judge Hill?

Q. Yes. Now, let us illustrate that a little: Suppose a
309 through train comes into Fort Smith with twenty cars; and it picked up there, and ten cars are set out at Fort Smith and ten of them are carried on through to Texas; ten more cars are picked up at Fort Smith, and those are the ten that came in on the other train to make up a new train of twenty cars going to Texas: I wish you would point out in Exhibit No. 15 the difference in expense that would be attributed to the cars passing through from Fort Smith to Texas, and those picked up there.

A. In Exhibit 15 you will find no charge to the cars which passed through Fort Smith. Exhibit No. 15 covers terminal expenses.

Q. It is the line that I am referring to: Is that Exhibit No. 14?

A. Yes, sir.

(Here ensued colloquy.)

(Previous question read.)

Q. It would really take both exhibits to point out that difference, would it not?

A. No, sir; it would depend on whether the cars picked up by the train there originated there, so far as the Frisco is concerned.

Q. That is what I am assuming in my illustration of the ten cars picked up at Fort Smith from Fort Smith industries.

A. And begin their journey there?

Q. Yes, and are put into a train with ten cars brought into Fort Smith from St. Louis on its way to Texas. That is my point.
310 I suppose it will take both Exhibit No. 14 and Exhibit No. 15 to point out the difference in the charges?

A. It will, yes, sir. As to the ten cars which the train picked up, and which originated, so far as the Frisco is concerned, at Fort Smith, that is a terminal expense.

As to the twenty cars which went through Fort Smith in a Frisco train, or came in in one train and went out in another, that is a line expense.

In the time study which we had our switch engine foreman make they separate the classes of work which they performed into line and terminal service. They show in their reports, the concrete effect of

which is reflected in these exhibits, that they devoted certain time in that Fort Smith yard to making up and breaking up trains. They show that they handled cars which were loaded or unloaded at Fort Smith. These twenty cars which went through, or came in in one train and went out in another, are included within the first category. These ten cars which came from Fort Smith industries, if you will, and went out in the through train that you spoke of, are included in both; handling them up to the train track, or the classification track, from the industry is the terminal service and the time of that service is included under the head of "Handling cars for loading" at that individual station. Then when they were classified and put into the train which took them out of Fort Smith the time there is charged up as making up that train.

Q. That would be identical with the charge against the
311 ten cars that were brought in by one train and went out on another, coming from St. Louis on its way to Texas—that line expense, would it not?

A. The ten cars which came in on one train and went out on another would get no terminal charge at Fort Smith.

Q. I understand, I say, line?

A. Yes, sir.

Q Those ten cars would get the same line expense attributed to them that the ten cars going out of Fort Smith would get, of line expense?

A. Well, I can't say that, Judge Hill, because when they came in in a train and the yard engine took hold of them and switched them around—and they do switch them around—and put them on the storage track on which they stand cars of through trains until they are ready to go out—then he took hold of them again and switched them around when he put them in the through train. That is two line handlings.

On the car that originated at Fort Smith he switched them over to the train track. That is the terminal service.

Q. That would be covered up in Exhibit No. 15, in regard to terminal service?

A. When the switch engine took hold of those ten cars and put them into a train, perhaps right with the other ten that came in from the north, that is a line service. In one case it is two line services and in the other a terminal and line service, to get them out of the yard.

Q. You say there were two line services on the cars coming
312 from St. Louis that went through to Fort Smith?

A. Yes, sir.

Q. In that the train would be broken up which brought them in?

A. Yes, sir.

Q. And a new train made up that took them out?

A. That is it, sir.

Q. How do you reach that, by your time study process?

A. Oh, yes.

Q. But the ten cars that were picked up at Fort Smith would receive one of those line services expense items——

A. Yes, sir.

Q. —instead of two?

A. That is it. They would get one line and one terminal expense item.

Q. Suppose instead of ten cars being picked up at Fort Smith there were ten coal cars that came in from the Mansfield Branch of the Frisco, delivered in the yards there and then transferred to the train with the ten merchandise cars from St. Louis that went on to Texas: What service does it get?

A. Line service, whether it came down from Monett or came up from Mansfield and went on out to the south, it would still be line service in both instances.

Q. It would get two line services at Fort Smith just the same as the train from St. Louis would get, would it not?

A. Yes, sir.

Q. Would it be charged with two line services in your Exhibit?

A. It would; not in the way you are thinking about, though.

313 Q. In what way?

A. Because we don't make the count of the cars in and out of the terminal, insofar as the division of this line expense is concerned, that we figured on in the Iron Mountain Case.

Q. In what way would those cars from the Mansfield Branch get it?

A. Whatever time the switch engines in the Fort Smith yard devoted to making up and breaking up through trains is so set up. In this switch engine foreman's report, Exhibit 2-I, the expense of that yard is apportioned, using that as one of the factors. That is the line expense in the Fort Smith yard. That is charged to line expense. The trains which came in there and went out of there got their proportion of the line expense incurred in that yard, as is shown here in Exhibit No. 14, on a gross ton mile basis.

Q. Gross ton miles between local and through trains?

A. That is it, sir.

Q. That is where they would enter into it?

A. That is it. That is all that line expense attaches itself to, the trains.

Q. Under your formula here, that service in the Fort Smith yard, for the ten coal cars from Mansfield, would be identical with that for the ten cars of merchandise that came from St. Louis and passed through the yard?

A. I cannot say so. I would have to know how much time the switch engine foreman would devote to those. Whatever
314 time he devoted to handling cars in and out of trains is charged here to making up and breaking up trains, and that goes against the line expense and then is divided between local and through trains on the basis of gross ton miles.

Q. I do not mean individual time of each one: I am trying to reach the general proposition: The service would be practically the same, would it not?

A. Sir?

Q. The service would be the same, practically?

A. I cannot say, Judge Hill, but I do know that whatever time was devoted to that service was charged to line expense, then divided

on a basis of gross ton miles on a ....ision between local and through trains.

Q. I have not yet seen where that would get into your line expense.

A. I am frank to confess that I do not think you have.

Q. No, I know I have not. You depended on your gross ton miles in local and through trains to get it in there?

A. Yes, sir. That is what the formula provides and that is what we have done.

Q. Now, take the terminal cost of those ten cars of coal that came in from the Mansfield Branch: What, if any of it, would be attributed to those cars in the Fort Smith yards?

A. They were not going to stop at Fort Smith?

Q. No, they were going on to Texas.

A. Nothing.

Q. They would escape all terminal costs in the Fort Smith yards?

A. That is a line service; there would be no terminal
315 charge.

Q. That would be handled practically like these other cars?

A. Just as if they were going through Jensen down there at 25 miles an hour.

Q. That is the way you treat those?

A. Yes, sir, so far as any terminal expense is concerned, and in that sense I mean terminal as interpreted in the formula.

Q. That includes yard expense——

A. That includes the line proportion; they would get the line proportion of yard expense at Fort Smith.

Q. But what you classify as "terminal expense" they would get no part of?

A. No, because what is classified as "terminal" is the expense attaching to the receipt of freight from the shipper and the expense of delivering it to the consignee. Any other yard expense is "line."

Q. This expense that you have attributed as line expense incurred at the station at Fort Smith and the yard at Fort Smith, which you have attributed to those cars passing through, is divided according to the train in which it goes, local or through, on the gross ton mile basis, is it not?

A. Yes, sir.

Q. Suppose one of those cars only moves ten miles and another one moves one hundred miles?

A. Yes, sir.

Q. Then the one moving one hundred miles would receive ten times the amount of expense of the one moving ten miles, would it not?

A. It would receive ten times as much; assuming the two cars were the same gross weight it would receive a charge ten times as
316 much for line service in yards, because the line service in yards is performed to prepare that train for its journey, or to take care of it after it has completed its journey, and the benefits of that preparation, or taking care of the train after the journey or before it, should be spread equally over the weight in the train according to the distance that it runs.

Q. Does not all this terminal expense also prepare the shipment to move?

A. No, sir. That is the line of cleavage right there. That is the expense after it comes out of the train, of delivering it to the consignee or getting it from the shipper before you put it into the train. That is the direct line of cleavage in this whole thing, all the way through.

Q. I see it is. Where you cleave the line on one side you put the number of miles that the freight is hauled as a factor to divide the expense, and on the other side the number of tons handled?

A. Because the functions performed in incurring the expense are entirely different, one is haulage and the other non-haulage. In the haulage, necessarily, the element of distance is a factor. In the non-haulage distance cuts no figure.

Q. You have just stated, though, that taking our illustration of ten cars from the Mansfield Branch, and ten cars from St. Louis, going through the Fort Smith station, they would receive
317 substantially the same service?

A. You speak now of line freight, not stopping there?

Q. Yes, line freight.

A. Yes, sir.

Q. Practically the same service?

A. I assume so.

Q. There would be no terminal service attached to either of those shipments?

A. At Fort Smith?

Q. At Fort Smith?

A. No, sir.

Q. If these ten cars that were picked up from industries around Fort Smith and went into that train, they would receive terminal expense there and that expense would be divided on the ton basis, whereas the other is divided on the ton mile basis?

A. The ten cars picked up at Fort Smith would receive terminal service. They would also receive line service when they were put into the train. They would be charged with both on the basis of the time devoted to each, but if they were carload shipments the terminal expense would not be divided on the ton basis, it would be on the per car basis. That is explained——

Q. Tons becomes the unit, ultimately?

A. No, sir. It is a different proposition, that carload and less-than-carload freight.

Q. How is that?

A. It is a different proposition, that carload and less-than-carload freight.

Q. Did you not modify your formula and throw those all into one?

A. Oh, no; no, sir.

Q. I see on page 6-A that you have done that on the rev-
318 enue; that may be what I have in mind.

A. I think it is, Judge Hill. There is not any such departure in the formula as to expense.

Q. You have not divided it on expense between C. L. and L. C. L.?

A. No, sir, the carload has been treated on the car unit, and less-than-carload on the ton unit.

Q. You started out to treat your revenue that way and then modified it as set forth on page 6-A?

A. Let me see what that is. (Examining formula.) I don't see that, Judge Hill; I don't see any reference to tons or cars on page 6-A.

Q. The paragraph just before "Excess baggage revenue."

A. Yes, sir.

Q. (Reading:) An "analysis was made of each item of adjustment covering refunds, over-charges, switching absorptions, under-charges and kindred items, as in the case of intrastate revenue, and each separate item of adjustment applied directly against the road haul to which it attached, between each pair of stations. After applying these adjustments, the equated mileage prorate provided for in the original printed formula was made, with the exception that carload and less-than-carload freight was not treated separately."

A. That is where we got the aggregate cost per ton within the state. That is for the revenue division equated on mileage.

Q. That revenue equation took in the very matter that we are talking of now——

A. No, sir, it did not.

Q. —the expense of terminals?

A. No, it did not.

Q. That is the way I understand it.

A. Not by the individual stations, only by individual functions at stations. It took in the cost per ton of handling freight in the state.

Q. That is your terminal cost?

A. Yes, sir.

319 Q. The very thing we are discussing?

A. Yes, sir.

Q. Then you did depart from it, as a matter of expense, on the revenue side of the question?

A. We did not depart from it. We did it consistently, we did it because we always intended to do that.

Q. You say right here that you did not, in what I have read you?

A. No, sir. I think you misunderstand me, Judge Hill. There are two separate propositions. In dividing terminal expense, carload freight was treated separately from less-than-carload. When those divisions had been made and the aggregate terminal expense determined, of all classes, for the state, it was divided by all the tons of freight, carload and less-than-carload, in one lump sum to get an average cost per ton for the terminal service, which was contrasted, necessarily, in our equation, with an average haulage cost per ton mile, carload and less-than-carload combined. You cannot separate haulage cost of the carload and less-than-carload. That is why.

Q. I understand. It is just as stated here: You kept them separate on the expense side, but then you deducted from your revenue an amount representing terminal cost——

A. I beg your pardon, Judge Hill, we did not deduct it from revenue.

The Court: As I understand page 6-A, it refers to the revenue, intrastate and interstate, less certain deductions which were made——

320 Mr. Hill: For terminal cost, the very thing we are discussing.

The Witness: What was done was this——

The Court: It says, "covering refunds, over-charges, switching absorptions, under-charges and kindred items, as in the case of intrastate revenue:" You are referring to intrastate revenue up there, that shows it.

Mr. Hill: Go back to page 6 of the original formula.

The Court: This, as I understand it, is the formula that was used in this case. The other was only used where there were changes made, so the formula that was used is the one that appears on page 6-A——

Mr. Hill: Not as I understand it. Everything is used as printed except where modified by the typewritten sheets.

The Court: Page 6-A shows how it was modified and how it was afterwards used. (To the witness:) Am I correct, Mr. Hamilton?

A. You are, yes, sir.

Judge Hill:

Q. In the original part, page 6, you will find somewhere there a statement that the carload and less-than-carload were treated separately, and I have just read you page 6-A, the modification of that: That is correct, isn't it, Mr. Hamilton?

A. That is correct.

I would like to explain that further in answer to your question, Judge Hill, so Judge Trieber may clearly understand what

321 it is, if I may do so.

Mr. Moore: Yes, you may explain.

A. It is this: This average terminal cost referred to on page 6-A, which we got for the purpose of making an allowance of revenue to compensate for terminal cost, was applied in the pro rate of interstate business. It has no effect whatever on the intrastate, which is a matter of actual allocation to the state.

The Court:

Q. You say the first paragraph on page 6-A is practically the same explanation of the formula for the state?

A. Yes, but in the second paragraph, your Honor, it explains——

The Court (Reading):

"All deductions from, or additions to gross revenue in the nature of adjustments, refunds, overcharge claim payments, switching absorptions, undercharges and kindred items, were analyzed, each item separately, and the result of this analysis applied against the gross revenue originally set up in the railroad's regular accounting records."

The Witness: What Judge Hill is talking about is the next paragraph where it refers to the interstate. That is the point.

The Court:

Q. Yes, but I do not see that the terminal charges were deducted from the revenue——

A. They were not deducted, no, sir. That was the point I endeavored to make.

Mr. Hill: It is not a deduction; it is an equation, as they call it.

322 The Court: But it does not mention anything about that; it mentions particularly what was used. It says——

Mr. Hill: Read the balance of the printed formula.

The Witness: It says in the last sentence of that paragraph, your Honor, "After applying these adjustments, the equated mileage pro rate provided for in the original printed formula was made, with the exception that carload and less-than-carload freight was not treated separately." That ties it up. I just want to make it clear that there was no deduction made from any revenue on account of terminal cost. It was not used for that purpose.

Mr. Hill:

Q. It is not in a sense arithmetically a deduction, but it practically amounts to that, Mr. Hamilton, by the equating?

A. No, sir, not in any sense of the word——

The Court: What difference does it make, if the expense was necessarily incurred, what difference does it make where it would be charged, provided there is no injustice done in the separation of the allocation between interstate and intrastate?

Judge Hill: It would make this difference: If it was improperly done you would have a wrong account to start your allocation between state and interstate.

(Here ensued colloquy.)

Mr. Moore: Let Mr. Hamilton explain it.

Mr. Hill (to the witness): Yes, explain it.

A. The question that has arisen, your Honor, if I may
323 explain it, is this: In dividing the terminal expense we have treated the less-than-carload separately from carload. We treated the carload freight as a car unit and the less-than-carload as a ton unit, and by that means we have assembled the total cost per ton in the state; that is, we built up a total cost of terminal service using the carload as the unit for carload traffic, and the ton as the unit for the less-than-carload. Then we had the total terminal cost arrived at in that way. We divided that by the total number of tons, carload and less-than-carload, in the aggregate, and found the average cost per ton for terminal service, of carload and less-than-carload together, and that is the average cost that was used to equate this interstate mileage in pro rating the revenue. That does not in any way affect the division that was made of the expenses, but is the result of that division. That is all explained in Exhibit No. 4. They are two separate propositions.

Q. Referring to the question the Court asked: Suppose that you

charged too much terminal; although it was a correct item of expense, it was improperly charged to terminal when it should be charged to line, or vice versa, would not that ultimately affect the division between state and interstate?

A. If there were any impropriety, any errors, in the division between line and terminal, it necessarily must have its ultimate effect on the division between state and interstate.

Q. Explain that to the Court; he did not seem to under-
324 stand it. I think you are right about it, but I ask you to explain it clearly.

A. I don't know that I can explain it any further than to say what I have said before this morning, that the primary basis of this scheme is the separation of terminal cost from line cost; that is, the non-haulage cost from the haulage cost.

I want, however, to disabuse your mind of the idea that we did anything here like what was done in the other cases, doubled up the state tons and applied them against the Interstate Commerce block of station and yard expense. If the state ton got handled the agent reported it; if it did not get handled he did not report it. That is true of the interstate.

That also covers your trans-state proposition. If a trans-state ton went across a platform the agent took credit for it and it was charged in these exhibits.

I don't know that I can say anything further than that.

Q. You were illustrating your line of cleavage between line and terminal where the shipment of cars passing through Fort Smith, part of them originating in Fort Smith, and others originating on a branch line: Those originating on a branch line would have no part of the service of the station at Fort Smith, which is assigned here as terminal, would they?

A. No, sir; they would have some expense in the Fort Smith yard, which is assigned in Exhibit No. 14 as line.

Q. They would have line expense——
325 A. In that yard, yes, sir.

Q. In that yard, of the same general character as the line expense in that yard attributed to the cars coming from St. Louis and passing through?

A. Yes, sir, that is correct.

Q. That illustration explains your line of cleavage that you were referring to, does it not?

A. No, sir. You are comparing cars that came in off the branch line and went through a yard, with cars that came on the main line and went through the yard.

Q. That is an actual movement, and a very large one. You know there is a great deal of coal shipped out there that way?

A. Yes, sir, but you have illustrated two line propositions and spoken of the line of cleavage between terminal and line service.

Q. It is correct as far as those illustrations go?

A. Yes, sir, except that it is one proposition: there is no cleavage between that and anything else. Those are both line services. The

contrast would be some cars which came in from Mansfield and were set on a team track at Fort Smith and unloaded.

Q. That would be a terminal?

A. Yes, sir.

Q. You have a great many branch lines in Arkansas that are similarly situated to the one we have been using as an illustration, the Mansfield branch, running into Fort Smith, have you not?

A. We have a very small proportion of branch lines in Arkansas; very small; negligible, in fact.

Q. You have two branch lines come in at Fayetteville,
326 have you not?

A. Yes, the Ozark and Cherokee Central Branch comes in there, and the Pettigrew Branch.

Q. You have two branch lines coming in at Rogers?

A. No, sir, one; the Grove Branch out of Rogers.

Q. What is that?

A. The branch that runs to Grove, the only one out of there.

Q. That is on the other road: Just one branch at Rogers?

A. Yes, sir.

Q. You have a branch at Hoxie, have you not?

A. Yes, sir, the Hoxie Subdivision comes down from Missouri, yes, sir.

Q. You have a branch at Bono?

A. That is not to be considered in this connection, because trains do not stop at Bono; they run right through as a——

Q. Does not the branch road come through?

A. Yes; it might as well be the main line of the Ozark Division; it is not a terminal, but a spur track.

Q. I never heard of the place; it is on the map?

A. Yes, sir.

Q. You have a branch line at Deckerville?

A. Those three branch lines are served by a switch engine that runs also on the main line—it does not make a terminal in any sense, at the junction with the main line.

Q. How about Turrell?

A. There is no terminal there.

Q. I am not familiar with the lines in that part of the state—you have a branch line at Tyronza?

A. That is handled at the—what I mean is this: At Bono,
327 at Tyronza, at Turrell and at Deckerville, trains do not have a termina-; they run through. They do at Hoxie, they do at Fayetteville, they do at Fort Smith and at Rogers.

Q. Don't they at Hoxie?

A. I said Hoxie.

Q. Are there any others? I am not familiar with them.

A. No, sir, that is the entire number.

Q. Is there not a branch line there at Jonesboro?

A. No, sir, that is the Cotton Belt that crosses us there.

Q. Is there not one at Wilson?

A. No, sir; that is the one you spoke of, the Deckerville Branch.

Q. Is that the same one?

A. Yes, sir.

Q. You have a great many junction points in the state, you have Mansfield——

A. Yes, sir.

Q. Fort Smith?

A. Yes, sir.

Q. Rogers?

A. You mean the Kansas City & Memphis?

Q. Yes.

A. We may have some day, but we haven't now. We haven't any direct connection there.

Q. Leave out Rogers?

A. Yes, sir.

Q. Hoxie?

A. The Iron Mountain at Hoxie.

Q. Jonesboro?

A. The Cotton Belt.

Q. You may have some others there in eastern Arkansas that I don't recall: Are there any others there? You have the map before you.

A. The Houck lines—I don't know; there are two or three little logging roads that cross us up there.

Q. On the southwestern line you have Ashdown and Hope?

A. The Kansas City Southern at Ashdown and the Iron
328 Mountain at Hope.

Q. I believe I omitted Van Buren: You also have that?

A. The Iron Mountain there, yes, sir. The Midland Valley crosses down there at Hackett on the——

Q. You cross the Midland Valley two or three times. I expect your traffic with them is negligible, though. Those are the principal junction points which have been mentioned, are they not?

A. Yes, sir, that is correct. There is the Rock Island also at Hulbert, just out of Bridge Junction. They have a cut-off from Marion to Hulbert, operating jointly for the two lines.

Q. Where you draw this line of cleavage between the terminal and the line cost, which will be illustrated by the traffic that you receive from these branch lines, as contrasted with the traffic you receive from these foreign lines and junction points, you change your factor——

A. No, sir.

Q. —of division of expense, treating what you have classified here as terminal as an expense to be divided on the cars or tons used at that station——

A. No, sir.

Q. —and in the other instance, as upon the gross ton mile basis as found in the local or through trains: Is not that correct?

A. No, sir.

Q. State why, if it is not.

A. What we have done is to treat as a terminal expense that expense which is incident to the receipt of freight from

the consignor and its delivery to the consignee, and to treat
329 as line expense the expense which is incident to the movement of that freight in getting it into a train and after it is got into a train.

Q. I understand that, Mr. Hamilton, but what I am getting at is the difference in your basis——

Mr. Moore (to Mr. Hill): Let him finish his answer.

Mr. Hill (to the witness): Yes, finish your answer.

A. I cannot answer it any other way, because we seem to misunderstand. And taking it out of a train when it got to the end of its journey. We have covered that division of expense by attaching the expense to the service in which it was incurred.

In the case of yard service, we have had a study made of the line and terminal time of switch engines. We have had, in the case of train service, a study made of the line and terminal time of trains upon the road. We have apportioned the yard service and the train service on the basis of that time, line and terminal, in accordance with the functions they performed.

Q. That is not the question I asked at all.

Mr. Moore: Let the stenographer read the question.

Mr. Hill: I will put it this way: What is your basis of dividing your terminal cost?

A. It varies with carload and less-than-carload.

Q. How do you do it in the case of the carload?

A. We separate the time of the station and yard organization as between line and terminal service, on the basis of the time devoted to line and terminal service.

330 Q. I am getting at your terminal service, you aggregate it from your line?

A. Yes, sir, I was coming to that. In the case of carloads we divide the expense which we have assigned to terminal, on the basis of the number of loaded cars handled containing state and interstate freight.

Q. You take the loaded cars as the unit there?

A. Yes, sir; in the case of the less-than-carload freight we divide it on the basis of the number of tons, so far as the warehouse expense is concerned, which cross over the platform, state and interstate; received, forwarded, and transferred from car to car.

Q. The ton is the basis there?

A. Yes, sir. In case of the office work we have taken the number of consignments, which indicates the measure of clerical work, state and interstate.

Q. The consignment is the basis there?

A. Yes, sir.

Q. Those are the bases, irrespective of the length of the haul?

A. Absolutely, because that is a non-haulage service, terminal.

Q. Then on the work and service performed in yards, which you have classified as line——

A. That is it, sir.

Q. —you use the ton mile as the measure in some of its affairs?

A. In dividing the expenses in yard and at stations, which is chargeable to the line, that is, preparing trains to run over the road, or taking care of them after they have run over the road, we
331 have divided that expense between local and through trains on the basis of the gross ton mileage hauled in each; the weight and the distance it was hauled, and then subdivided the expense assigned to the local train and to the through train on the basis of the net ton miles, state and interstate, which each one of them hauled.

Q. The office expense, terminal, you would divide on the basis of the loaded car, the tons, and the consignments?

A. No, sir, on the consignments.

Q. On the consignments entirely?

A. Yes, sir.

Q. That would be equivalent to the number of way-bills; is that what that would amount to?

A. No, sir; because you might have twenty consignments on a way-bill. I often had thirty when I used to make them. This is the individual shipment, one shipper to one consignee.

Q. I supposed all of those were covered by the way-bill.

A. They are, but you get twenty or thirty of them on a way-bill, as a matter of economy, so that the entry in the accounts——

Q. Would be the number of actual shipments?

A. Each shipment separately, in or out.

Q. You have taken your traffic expenses here and treated those all as terminal?

A. It did not make any difference where we put them. You could put them in line, if you cared to.

Q. I am not talking about whether I cared to; I am asking whether you did do that. You have those all treated as
332 terminal, have you not?

A. We set them into the terminal column on these exhibits, but we did not divide them between state and interstate on the basis of tons, or cars, or consignments. We divided them between state and interstate on the basis of state and interstate net ton miles, the traffic that we secured; and in the case of the passenger on the passenger miles, the traffic that we secured.

Q. If that is terminal why did you depart from your unit that you used in your station and use the ton mile or passenger mile for it?

A. We had an expense, a traffic expense, which strictly speaking, was neither haulage nor non-haulage: For convenience in preparing these exhibits we noted them down on the terminal sheet. It is not incurred at the station by the station agent or by his force; if it is, it is not chargeable there under the Interstate Commerce rules. It is the traffic solicitor, general freight office and general passenger office, and has nothing to do with the station service. They are employed to secure traffic, and we measured their efficiency, or, perhaps I should say, the benefits the traffic derived, state and interstate, from the expenditure of that money, on the basis of the traffic they got, the net ton mile, state and interstate. Traffic expense has abso-

lutely nothing to do with station service. We had to put it somewhere until we could dispose of it between state and interstate, and we put it on the terminal sheet.

333 Q. What relation does the mile that the passenger travels have to do with the expense of an agency in New York?

A. Well, our general agent in New York, in the passenger traffic Department, might very properly influence intrastate business. We assume that he does.

Q. Do you think he has any effect on the intrastate passenger business?

A. Yes, sir, I think he has.

Q. You think the advertising—is not that one of the big items in that—does that affect your intrastate business?

A. Oh, yes; we advertise lots of our short haul business, and it is expensive advertising, too.

Q. These outside agencies: You think they are affected by the number of miles that the passenger travels in the state?

A. No, sir, I don't think they are affected by it in any way, but I think the money we spend to secure business is properly chargeable to the business according to the volume which we secure. The expense is there and we spread it over the business that we get as a result of that expense. That is the theory used.

Q. I understand these office terminal, as you have described it——

A. It is not terminal.

Q. You have assigned it as terminal.

A. No, sir, we have done nothing of the kind.

Q. Turn to your exhibits and you will find it assigned all the way through.

A. We have been at all pains to see that it is not.

334 Q. I say it is on the terminal sheet?

A. I could have set up a separate exhibit and called it traffic expenses.

Q. But you have treated it all the way through in this sheet as terminal.

A. No, sir; because it is not divided on the terminal unit.

Q. Take page 14.

A. Yes, sir.

Q. "Assign to 'terminal,' exclusively."

A. Yes, sir.

Q. You said I was not correct in making that statement.

A. You are not correct, because it is not treated as a terminal expense; it is not divided on the terminal unit.

Q. I am asking you if it is a terminal expense why not divide it on the terminal unit?

A. It is not a terminal expense in any sense of the word. It is not a haulage expense or non-haulage expense, and we put it upon our terminal sheet to have some place to carry it. I could have made up a traffic expense exhibit if it would help any. We have divided it on the tons, cars, or passengers or consignments, which are the terminal units. It has been divided on the ton miles——

Q. As between state and interstate you put it on the basis of the net ton miles?

A. And the revenue passenger miles.

Q. At page 22 you "locate direct where possible, and apportion common 50 per cent each to freight and passenger."

A. Yes, that is proper. The Interstate Commerce Commission tells us to do that.

Q. You have carried that equally to freight and passenger, have you not?

A. Oh, no.

335 Q. You say here "apportion common 50 per cent each to freight and passenger?"

A. That does not mean we have carried it equally to the freight and passenger.

The Court:

Q. What item is that on page 22?

A. 53 to 60, traffic expenses. Not by any means, Judge Hill.

Mr. Hill:

Q. Why not?

A. Because we have traffic representatives and freight representatives——

Q. I said common.

A. Oh; you said we have carried this expense——

Q. I said the common expense; I was reading from your formula right before me. It says "common expense"—"Apportion common 50 per cent each to freight and passenger."

A. That is correct. That is Interstate Commerce Commission requirements and good judgment at that. That represents the general traffic manager, the chief traffic officer of the railroad, if you will.

Q. And your Vice President in charge of traffic?

A. The chief traffic officer now, under the receivership, who has charge of both passenger and freight departments. The Interstate Commerce Commission says in its rulings, that when a man has duties of that kind in connection with that department specifically, he shall be charged one-half to each; that is, his salary and expense. We may have at some outlying point a man who is both a freight and passenger representative, solicitor. The Interstate Commerce

336 Commission says, "Charge him 50 and 50." We have done it. That is all there is in that.

Q. What rule of the Interstate Commerce Commission requires that to be divided 50 and 50? Give me a reference to it and I will look it up.

A. I will read it, Judge Hill.

Q. I just want the page reference.

Mr. Moore (to Mr. Hill): Let him read it.

The Witness: On page 60 of the classification of operating expenses, prescribed by the Interstate Commerce Commission in accordance with Section 20 of an act to regulate commerce, the third revised issue, under Account 53, pay of officers, etc., it says: "When officers and others"—this enumerates the officers—"have supervision over other departments their salaries and expenses shall be appor-

tioned equally between the departments over which they have jurisdiction."

Mr. Hill:

Q. That is to say, between freight and passenger?

A. It is talking about traffic officers. I don't know what else they could mean. I would like to say, too, if there seems to be any doubt on that score, that the railroads of the country—I have heard that discussed quite a little by railroad auditors, and know our own road does it—make such a division and it is accepted by the Interstate Commerce Commission as a compliance with that rule.

Q. I did not know that the Interstate Commerce Commission ever made any division between freight and passenger on anything. If that should be divided——

337

A. Answering that, Judge Hill, I have seen a circular quite recently covering the proposition of that division, that is the twin brother to this formula you have before you.

Q. Have you?

A. Yes, sir.

Q. Take 53 to 60, traffic account expense, on page 35: If the 50 and 50 is a good division between freight and passenger——

A. What is that?

Q. Traffic expenses, page 35: You divide between state and interstate on the basis of net ton miles: If it should be divided between freight and passenger on the basis of 50 per cent to each, why do you part from that division of it and take the net ton miles between state and interstate?

A. You are assuming we divided the whole body of traffic expenses, 50 and 50 between freight and passenger.

Q. No, I say common expenses.

A. That is the traffic vice-president, etc.?

Q. Yes.

A. How else would you split that?

Q. That is your job, not mine. I am asking why you do it one way in one place and another in another place.

A. The problem before us was the division of traffic expenses between the state and the interstate traffic, and it so happened that we have a man or two whose duty covers both freight and passenger. We had to divide him between freight and passenger and we did it in accordance with the Interstate Commerce rule that I have read to you, for the division of the salary and expenses of officers who have supervision over two or more departments. Having, then, the freight and passenger traffic expenses, most of them direct freight and most of them direct passenger, I cannot see that the split of the pay and expenses of our chief traffic officers, and one or two commercial and passenger agents, should be carried into the division of passenger expenses between state and interstate. To me it is an absurd proposition.

338

Q. So you don't do it because it is absurd?

A. No, sir; because, having got these passenger traffic expenses, these freight traffic expenses, most of them actual, with only a few items necessarily split in accordance with the Interstate Commerce

rule, there can be no warrant in good judgment, that I can see, for the division of them on an arbitrary basis when you have a traffic unit of ton miles and passenger miles to divide them on.

Q. You have divided other expenses, common expenses between freight and passenger, upon the gross engine ton mile basis, have you not?

A. Yes, that is maintenance of way.

Q. Why did you not divide this upon the gross engine mile basis?

A. Because the traffic officers are not engaged in running engines or trains over the railroad; they don't pull any gross ton miles.

Q. You divide that here on net ton miles?

A. That is what they are, that is the traffic they secure.

Q. They are not engaged in running net ton miles any
339 more than cars?

A. But they are engaged in securing net tons to be moved, miles.

Q. You have to have a gross ton before you have a net ton?

A. Yes, but they don't solicit empty cars or tare weight, but freight and passengers.

Q. I find about three bases on these common expenses——

A. You must be sure, Judge Hill, that they are also common expenses in the sense that they are common—they may be common to one or more things, but be sure they are common expenses in the proper sense of the word.

At this point recess was had until 1:30 o'clock in the afternoon.

340 After recess on Tuesday, June 23, 1914, the following proceedings were had:

Cross-examination of Mr. T. A. Hamilton continued.

By Mr. Hill:

Q. Mr. Hamilton, take your formula and on page 12, 2 to 10, and divide it between terminal and line on the basis of assigned charges to engine house expenses, yard and engine house, road, accounts 72 to 81.

A. I don't follow you. We have not made such a division here.

Q. Maintenance under "E", which is "engine houses," "turn tables," "Y's," "fuel and water tracks," are divided how?

A. On the basis of assigned charges, 72 to 81—you mean the proportion of maintenance included in those accounts?

Q. Certainly.

A. Yes, I follow you now.

Q. This engine house expense, yard, account 72, is divided on the time basis between line and terminal, isn't it?

A. Engine House expense, yard, accounts 72 and 81—yes, that is correct.

Q. And engine house expense, road, divided between line and terminal, are divided on the basis of the ratio of time devoted by the freight and passenger locomotives respectively to station service?

A. Yes, sir, that is correct.

341 Q. And the sum of these two bases is added together and that used as a factor to divide this maintenance charge: Is that correct?

A. No, sir, that is not the process.

Q. What is the process?

A. Account 72, being "expense engine house—yard;" and account 81 being "expense engine house—road" there is a primary division there which you have not taken into consideration. Road engines and yard engines are housed in the same roundhouse. The division between yard and road at each individual engine house is made on the basis of the number of yard engines and the number of road engines, lumping freight and passenger together, using each engine house. That gives you your division of engine house expenses between yard and road; they both use the engine houses in common.

Q. Let me interrupt you there a moment. Where is that primary division? On what page is it shown?

A. You have here set up in the Interstate Commerce Commission accounts, "engine house expense—yard," and "engine house expense—road." That is where I started. That is arrived at on the basis of the engines using the roundhouses and is so reported to the Interstate Commerce Commission.

Then the engine house expense—yard, which is the expense attaching to the actual use of roundhouses by yard engines, is divided as you have it set forth here on page 12 and on the time bases as reported by the yard engine foreman as to how

342 much time the yard engine devoted to line service and how much to terminal service.

Expense account 81, which is the road engine proportion of engine house expenses based on the number of road engines using the roundhouses, is divided between line and terminal on the basis of the time used in line and terminal service of road engines, freight and passenger separately.

Q. You don't throw those two together?

A. No, sir. They stay apart when we divide them according to the Interstate Commerce Commission requirement, and each one is treated upon its own basis.

Q. You modify your formula, in account No. 72, instead of taking the individual yards you take the entire state, don't you?

A. That is correct, yes, sir.

Q. Then you would take the aggregate of the charges which is reached in No. 72 as part of the factor with which to divide the maintenance of these particular tracks?

A. We took the aggregate of the time devoted to line, and the aggregate of the time devoted to terminal service, by the switch engines in all the yards in the state, and divided the total charge to the state for account 72, on that basis.

Q. What relation has that to the maintenance of these particular tracks—engine houses, turntables, Y's, fuel and water *tanks*?

A. We were talking about engine houses in the beginning.
343 The turntables, the Y's which served as turntables where we have none, for the purpose of turning engines; the fuel and water tracks; those tracks to fuel stations and water tanks, serve these engines whose time we have divided between line and terminal. And the formula contemplates this division of the maintenance of tracks on the basis of the use made of those tracks and the engine houses. And the time in the two classes of service, line and terminal, we thought was the best index of that use.

Q. That expense incurred in the engine house was for the service of the engine in the engine house and repairs to it?

A. That is not true.

Q. What relation does service and repairs to an engine in an engine house bear to the repairs and maintenance of tracks outside of the engine house?

A. *Per se* they have nothing to do with it; but inasmuch as they have been divided—that is, the expense of caring for the engine in the house upon this time bases we simply used that figure to divide this item of maintenance of way. We could just as well have taken percentages of time which we applied to engine house expense and applied it directly to the track maintenance. That is a brief way of stating we did the same thing on the time basis in both cases.

Q. I fail yet to see the relation between service to the engine in the roundhouse and repairs to it, with these tracks at fuel stations and Y's and water tanks, and turn tables and things of that kind.

344 A. I don't know that I can make it any plainer, but I will try——

Q. Take another point——

*Q.* Let us finish with that and I will try to make it plain if I can. We found—I have not the percentages, that yard engines, switch engines, devoted 90% of their time (that is an illustrative figure, as I do not recall what it was), to line service, and 10% to terminal service. These figures are simply illustrative and not actual. Then we divided the expense of the engine house, wipers, machinists, fire cleaners, etc., 90% to line and ten per cent to terminal.

When we came to divide the expense of maintaining that engine house and those Y's, fuel stations, turn tables, water tanks, and so on, we put 90% to line and 10% to terminal, because when we had divided the engine house expense itself—the wipers, helpers, hostlers, and so on, 90% and 10%, the division of that expense was 90 and 10; and working it over to divide track maintenance meant that we put the time study 90% and 10% on the track maintenance.

Q. That would assume that the cost of the engine house service and repairs to each engine was the same, wouldn't it?

A. That would assume that it cost as much to roundhouse or handle in the roundhouse a yard engine as a road engine.

Q. And the freight engine as a passenger engine?

A. Yes, precisely.

Q. Aren't the repairs to a road engine more than to a
345 yard engine?

A. Repairs are not charged to engine house expenses.

Q. Some repairs are, aren't they?

A. No, sir.

Q. Repairs done in the engine house?

A. No, sir, they are charged to account No. 25.

Q. Let us see account 25. Under what is that?

A. Maintenance of locomotives.

Q. That is repairs and cleaning account—but before we get to that. One of the factors you use is the time a locomotive stands at the station, and that is divided as between terminal and line?

A. Do you mean stands at the station or switches at the station?

Q. What relation would the factor thus obtained have to the maintenance of these particular tracks?

A. It is the same proposition that I have explained.

Q. You think the same answer given to the other question would apply to this one, too?

A. Yes, sir. We have divided the time of those locomotives out on the road and at stations between line and terminal on the basis of what they spend the time for at those stations—either line service or terminal service; and have applied that percentage to the engine house expenses; and as a matter of mathematics have actually applied the same percentage in dividing the expense of maintaining the engine house and its adjuncts, tracks.

346 Q. The cleaning of a switch engine, under that basis, would be assumed to be the same cost as any other?

A. Yes, sir. It would make very little difference on our road because we do not wipe any of our engines, switch, road, or any other kind.

Q. Take the formula on page 17, accounts 2 and 10.

A. I have it before me. That is straight track maintenance.

Q. This is maintenance of way expenses of all track except that which has been located exclusively to freight and passenger, isn't it?

A. No, sir, this is the division of the expense of maintaining tracks assigned to the line service, between freight and passenger; and then to start with, where we had any exclusive freight and passenger track——

Q. You said a while ago——

A. As a matter of fact it is all common.

Q. Exclusive freight and passenger track under this head you might treat as a negligible quantity?

A. On our road, yes. This is the expense of maintaining the straight main line track between stations.

Q. That is the biggest item of the whole maintenance of way account, isn't it?

A. Yes, naturally.

Q. The others are comparatively small?

A. Small by comparison, yes.

Q. The apportionment of that between freight and passen-

347 ger is made on the basis of the engines ton miles based on the weight of the engines in working order?

A. That is correct.

Q. What do you mean by "engines in working order." Do you mean the actual mileage taken by every engine?

A. No, sir, an engine in working order means one which has upon its tank the usual amount of coal, and in its tank the usual amount of water, and in its cab a complement of equipment which the engineer carries, tools, and so on; and upon the back of the tank brasses and chains, and so on; that is, the equipment of an engine and an equipment of fuel and water. In other words, an engine ready to run upon the line and pull a train.

Q. You average, I assume, the fuel and the water?

A. It has been averaged two-thirds of the gallonage capacity of water in the tank, and two-thirds the tonnage capacity for coal, both of which we know definitely.

Q. In that you get the gross tons of the engine?

A. No, sir, we add that to the actual weight of the engine.

Q. I say, in that way you get the gross tons of the engine?

A. Yes, sir.

Q. And then you multiply it by the miles made by the engine?

A. By the miles it made in road service.

Q. The result of that apportionment works out in round figures 49 for passenger and 51 for freight, doesn't it?

348 A. In Exhibit 9 that division is shown. It runs 49% for passenger and 51% for freight, leaving out the fractions.

Q. On the basis of that, isn't it rather striking that the passenger service contains practically half of the way?

A. No, sir, we think not. My recollection is that the revenue train miles, freight and passenger, ran about 51% passenger and 49% freight; and the engine ton mile division on our road is very closely akin to the revenue train mile division. For that reason it seems to me an eminently fair division.

Q. You think the revenue train mile basis would be a fair division?

A. I think it strikingly illustrates the saneness of using the engine ton mile because we contend as a justification for the use of that unit that the size of your engine, which of course indicates its weight, is conditioned to the speed and weight of your train—in other words, to the service requirements.

We try to fit our engines to our trains in that way. We buy them when they are built and have them designed in accordance with the service expected of them, and their size is indicative of that service in the speed and weight of the train they are expected to handle.

Here the engine ton mile, fortunately, as an illustration, works out practically the revenue train mile and shows, to my mind at least, that our theory is correct.

Q. You are assuming that the revenue train mile would be a proper factor to prove that by its being nearly similar?

349 A. No, sir, I assume it because the revenue train mile supplements the engine ton mile, proving so far as the Frisco in Arkansas is concerned, that the engine is conditioned to the time and speed of the train it is expected to and does haul?

Q. This factor ignores entirely the weight behind the engine, doesn't it?

A. Yes, sir, except as the engine is conditioned by its size to pull that weight, at the speed required of it.

Mr. Moore: And that you say the engine does, and it indicates the rate of speed?

A. We think the size of the engine indicates the service required of it.

Mr. Hill: This factor ignores entirely the speed of the train?

A. Except as it is reflected by the size of the engine as compared with the weight of the train which it has to pull.

Q. Suppose a very big engine happens to be very lightly loaded?

A. You mean in road service?

Q. Yes.

A. That does not happen on the Frisco. We are getting about 95% of our engines' potential ability day after day on our road.

Q. Did you in 1907?

A. Yes, sir.

Q. Did you after the panic struck you in 1907?

350 A. Yes, sir. We do not run engines except on local trains unless we have a full train—and we fill our locals.

Q. Is your traffic equally distributed on the Frisco?

A. No, sir.

Q. Which way is heaviest?

A. It is unbalanced in spots.

Q. And unbalanced in seasons?

A. No sir, I haven't found it so, and I have studied that matter pretty closely. On the main line of the Kansas City Ft. Scott & Memphis from Memphis to Springfield, leaving the state above Mammoth Spring, we have the best balanced traffic on the railroad. It is practically balanced, and has been for years. It has been my peculiar duty to make a study of those conditions day after day, and I happen to be conversant with that situation.

North of Turrell on the river division, to the Missouri line, for a short distance the traffic is not so well balanced, but the disparity is not so great.

On the Ft. Smith line, the Monett-Paris line, which passes through the northwest corner of the state, we have again a well balanced traffic.

As to the line extending from the state line to Hope, 56 miles, my memory unfortunately, does not serve me.

Q. By "balance of traffic" do you mean in cars or in ton miles?

A. Gross ton miles, everything that moves on wheels over the road, except the engine.

351 Q. Don't you find in that northwest section the outgoing traffic is much heavier in the fruit growing season than in any other part of the year?

A. We have a very considerable green fruit movement from the north end of that central division, the line from Monett to Paris, at times; but we have constantly a heavy merchandise movement to Texas.

I speak of a year's business when I say the traffic is well balanced.

Q. Taking the four months' figures, as in 1907, and that would not be the case, would it?

A. I could not say without making the figures for the four months. But I will be very glad to do that if you care for it.

Q. Those four months would not get the greater part of the fruit in that section, would they?

A. They would be getting the second crop movement from Brownsville.

Mr. Moore: And how about apples?

A. Yes, sir, there is a heavy movement of apples from Rogers and thereabouts.

Q. You get a good part of that early vegetable movement, and also strawberries in that vicinity, and all that would be moved in that period?

A. Yes, sir, and the heavy Texas merchandise traffic would be going back at the same time. When I spoke of a well balanced traffic it was based on a year's figures.

352 Q. If you could get it conveniently, Mr. Hamilton, I would like to have those figures set up for the four months.

A. I will be glad to give it to you for any month in the year you would like to have it. We are a gross ton mile railroad, and are rich in statistics on those subjects.

Q. When you make the division you use gross ton miles for that?

A. Yes, sir.

— Why do you use gross ton miles there and net ton miles in the other case?

A. The first division between freight and passenger contains within it an element of speed which is not material between the local and the through freight train; and for that reason we used the engine ton mile basis between freight and passenger; the big passenger engine pulling a relatively light train, the big engine being required because speed is required; and a big freight engine being required because a heavy tonnage is required to be hauled.

Now when you come to a local and a through train, there is not any difference in speed, and you have not that factor to contend with. Therefore, we divided the freight expense between local and through trains on the use which the local and the through trains got out of the track, the gross ton miles they hauled over it.

Q. Your gross engine ton miles does not take into consideration speed at all, but you assume the type of engine would in-

353 dicate at what speed it would run?

A. No, sir. We assume the size of the engine—not type, because that means the build of the engine. But the type indicates its construction. We have consolidation engines small as a watch charm, and we have some such engines that weigh 295,000 pounds.

Q. Well, I am not familiar with your terminology.

A. We understand that the size of the engine indicates the speed and the weight of the train the engine is required to pull.

Q. But it is a mere assumption, its doing it?

A. No, sir, that is not a mere assumption,

Q. Why isn't it?

A. Because if we have traffic to move and we have on a given division at a given point, at any time you choose—let us say a thousand ton gross to move, and the rating over that division of a big consolidation engine—assuming one is in service, is 2,000 or 2,200 tons—if our yard master or train master was to turn that engine loose with that thousand tons behind her when she could pull twenty-two hundred, he would not hold his job very long. What would be done is this: He would hold that thousand tons until he had a full train and then he would give the engine all she could pull for that class of freight.

Q. There is a great difference between what an engine can pull on different parts of the line?

A. Yes, that is true.

354 Q. So an engine indicative of a certain load on one division would be indicative of quite a different load on another division?

A. That is true.

Q. So this would be assuming that your engine would carry the same load everywhere?

A. Oh, no. Between Monett and Ft. Smith or between Ft. Smith and Monett, where we climb Boston Mountain, where we climb 1200 feet in 14 miles, we have our biggest consolidation engine, the biggest we have except our Mallett. Between Thayer and Harvard we have our little 700 class compound engine, a very light engine, and they are pulling about the same size train.

Q. In climbing Boston Mountain you would have two malletts pulling that train, wouldn't you?

A. No, sir, we have a helper engine, another consolidation engine, running from Chester up to Winslow.

Q. Would its weight be indicative of what it would do?

A. No, sir, that would be a helper engine.

Q. Wouldn't that enter into your division here?

A. Yes, sir. The ton miles of that engine are figured on that train. That represents the gradient it has to climb.

Q. The gross ton miles of a passenger train could be worked out just as well as the gross ton miles of a freight train?

A. Yes, sir. We began working them out from the first of June of this year for our own information. As a matter of fact,

355 we did work them out and if Mr. Press is here with the figures I will be glad to give you the percentage.

Q. I am trying to find out what you have done and not what you might have done.

Q. You asked about the figures. We did work them out and we have those figures.

Q. There is very little empty car movement on passenger trains, isn't there?

A. Yes, sir. Passenger cars are not hauled as empties. We may dead head a car to the shops, or something like that, once in a while. But that is negligible.

Q. There is a very large empty movement of freight cars, isn't there?

A. Yes, sir, it runs heavy and light at times.

Q. Do you know about the per cent—I don't know if you have it in these exhibits or not—but I expect you have,—the per cent of empty cars to the total?

A. Oh, yes. I make that figure and analyze it every month.

Q. What is it?

A. In recent months it is 35.

Q. Car movement to empty cars?

The Court: When was that?

A. It has fluctuated a great deal. A year ago it was as low as 22 or 23, and recently because of the slump in business and to get
356 foreign cars off our system and thus save per diem, it has run up to 37.

Q. How about 1907: Wasn't there a congestion of traffic until the latter part of September when the crisis was reached. That was the testimony in the other case?

A. I am not clear as to the percentage at that time, but the figures are available.

Mr. Moore: The congestion was in 1908.

The Court: No, it was in 1907, before the crisis came.

A. In the last four months of the year 1907 we had the largest earnings on the Frisco for some years before and two or three years afterwards, and we have not much more than caught up now.

The Court: The crisis began in 1907, and the evidence in the last case was that it began to make itself felt in the latter part of December.

Mr. Hill: The slump began in November, Mr. Nay testified?

A. On our line the slump struck us the latter part of December.

The Court: In some parts of the country it made itself felt sooner, but down here—I suppose on account of cotton, we did not feel it so soon.

Mr. Hill: Mr. Nay said that on his road, the Rock Island, it began to be felt in November.

The Court: I remember this, that the evidence was that during the months of September and October there was such a congestion of freight that everything was used and an immense amount
357 of interstate freight was sent on local trains, in order to get it out of the way.

A. I have some figures here which will throw some light on that, if you care to hear it?

The Court: This injunction is based on the business of 1907.

A. I have here Mr. Oliver's figures, which I verified, which show the entire Frisco freight earnings for those four months, September, October, November and December, 1907, to be as follows: Total of gross earnings on freight: September, $2,241,000; October $2,461,000; November, $2,252,000; December, $1,979,000. That verifies the Court's understanding, so far as our road is concerned.

The Court:

Q. That was the evidence on the other road. My recollection is that on the Cotton Belt and the Iron Mountain it was later than that, on account of the cotton proposition.

A. Yes, sir, but we do not haul much cotton in Arkansas.

The Court: Then there was the empty car movement?

A. I have not those figures, but I can get them.

Q. Doesn't the empty car movement depend on the traffic hauled and the season?

A. Yes, sir, the direction of the traffic.

Q. When the cotton season is in full swing there are more empty cars to be brought down; and on the other hand when the cotton season is over the empties go back?

A. Yes, sir, that is one of the conditions we have to contend with.

Mr. Hill: Here is your report to the railroad commission
358 in 1908, on the loaded and empty car movement; if you make a quick calculation I think you will find it was at that time about one-third empties.

A. Yes, sir, it has run from about 28% up.

Q. We will assume for our particular period that it was about one-third empty car movement?

A. I can get you the actual figures.

Q. Mr. Hamilton, in dividing between local and through trains you do that upon the basis of the gross ton miles, which includes the empties, of course?

A. Yes, sir.

Q. But when you make the final division between state and interstate, you do that upon the net ton miles?

A. That is correct.

Q. That excludes the empties?

A. That is correct.

Q. The effect of the empty car movement upon maintenance of way is ignored entirely in the divisions you have adopted here?

A. Oh, no, sir. No, it is not. Maintenance of way is divided between freight and passenger on the engine ton miles, as we have stated.

Q. That excludes all empties on the passenger side, of course?

A. Well, all the empties you will find in a passenger train——

Q. They don't amount to anything?

A. It is absolutely immaterial and negligible.

359 The Court: Sometimes they bring them down for excursions, or something like that?

A. Yes, sir.

Mr. Hill: But they would be excluded by using the train miles?

A. I don't know that we have even that. A private car might go over the road without anybody in it. But, after dividing the expense between freight and passenger on the engine ton miles, we then divide between through and local on the gross ton miles; that includes the empty cars; that includes everything from the pilot of the engine to the rear platform of the caboose.

Then, having divided maintenance of way expenses, the item we are discussing, between local and through freight trains on the gross ton mile basis, ignoring the element of speed, because there is no difference in the speed, we sub-divide the assignment of the local train and the through train each on the basis of the net ton miles of state and interstate freight carried on each class of train separately.

Q. That of course spreads the empty movement on the state and interstate.

A. In the class of train upon which it is carried, and the theory underlying that division is that the local train carries empties for state freight and for interstate freight; and the through train carries empties for state freight and for interstate freight; and no man can determine which is which.

Q. And you think as between local and through that you have compensated for the empty freight car movement, which amounts to about 33⅓% of the total movement?

360 A. Yes, sir, that 33⅓% of empty cars is in the gross ton miles.

Q. I understand, but it is excluded and spread over the net ton miles, when you come to the final division?

A. I did not finish my answer, Judge Hill. That 33⅓% of empty car miles——

The Court: What difference does it make? The cars have to be hauled; even if they are empty they have to be taken to these places where there is business; or if they are foreign cars they have to be taken back, don't they? It is an expense and it has to be charged to some expense account. I take it that cars, if they are empty cars, used in local traffic, have shifted out of the state, and are charged to the local traffic.

Mr. Hill: There is no question about that.

The Court: Then what difference does it make?

Mr. Hill: If the maintenance of way expense is not properly set up as between freight and passenger, that will affect the final result, as the relation between freight and passenger, state and interstate.

When you come to a further apportionment it makes a big difference. As between freight it is all right. But my question is, whether as between passenger and freight this great empty movement, which of course would affect the tracks, and affect this particular item of expense we are now discussing is disregarded—as I see it.

The Court: Isn't the question really how it should be treated between state and interstate, rather than as between passenger

361 and freight?

Mr. Hill: It is between state and interstate freight.

The Court: It all goes together. It is not as if it were before the Interstate Commerce Commission.

Mr. Hill: I think your Honor has a misconception about this matter. You brought it out the other day. You stated it made no difference between freight and passenger whether a legitimate item were charged on one side or on the other. That is a mistake. If you take those statistics and analyze them you will see that. Say the

passenger intrastate is 40% and the passenger interstate is 60%; and that the freight is 10% interstate and 90% intrastate; you will find if you take those figures and work them out it makes a difference between this 10% or this 90%.

The Court: But finally the question is this: What is the entire revenue from both classes, and what is the proportion of those expenses?

Of course, I understand what you mean. The proportion depends upon the proportion of the business that each does.

Mr. Hill: Take an item of $1,000, and if you divide it on passenger percentage, using my arbitrary percentages, there would be $400.00 of that charged to the state. Now if it should properly belong to the freight side, there would be $100.00 charged to
362 the state. So you see the importance of getting the allocation between passenger and freight correct to start with.

Mr. Hamilton: To continue my answer: That 33⅓% of the total car movement, as has been stated here is empty, and that is approximately correct,——

The Court: You mean that is a fair average?

A. I will have the actual figures here tomorrow, but assuming that is correct, and it is not far wrong—that proportion of the car miles which is empty is included as a component part of the weight of the freight train the freight engine is conditioned by its size to pull.

The Court: You mean, if the locomotive's capacity is for 30 loaded cars, if there are empties there, and only 20 loaded cars, they would add 25 or 30 empty cars?

A. Whatever the gross tonnage would be.

Q. So the gross tonnage would be practically the same as the type of that engine could draw, so as to make it draw its full capacity, whether of full or empty cars?

A. Yes, sir. The man who makes up the trains and puts them in charge of the engineer leaving the terminal, is held to strict accountability as to the gross tonnage which he puts into those trains.

Q. I believe the evidence before showed that the capacity of each engine is fixed?

A. Yes, sir. It is rated according to the gradient of the line and curvature it has to meet with as a matter of resistance, and the character of the freight it hauls.

363 And the empty car in the train is just as much a part of the gross ton load put upon that engine, as the loaded car.

By Mr. Hill:

Q. This division on the net ton miles between state and interstate throws upon each of those classes of traffic the proportion of the empty cars that are carried on those trains that their ton miles bore to each other?

A. That is exactly correct.

Q. That assumes that the empty car movement state is the same as the empty car movement interstate?

A. No, sir.

Q. Relatively, I mean, of course.
A. No, sir, I would not say so.
Q. Why does it not?
A. It assumes that the empty cars hauled upon the local trains are hauled for state and interstate traffic proportionately to the net ton miles of freight in those trains; and it assumes further that the empty cars hauled upon the through trains are for state and interstate proportionately to the net ton miles of state and interstate freight in the through trains.
Now, you have omitted a factor from your proposition—the difference in empty car miles on the local and on the through trains, and the length of haul of empty cars on local and through trains.
Q. Omitted it in what way?
A. You asked me if the division of the empty car haul on the basis of net ton miles did not assume that the empty haul was as great for state as for interstate.
364 Q. Of course, I was referring to the two trains. You would assume it would be the same on the two trains? I was asking the question in the aggregate.
A. It does not assume you have the same haul of empty cars on account of state as on account of interstate traffic.
Q. I remember your figures 85 interstate and 15 state.
A. Net ton miles.
Q. That would assume 15 per cent of the empty car movement was intrastate?
A. On the local train.
Q. And 85% on the through?
A. No, sir, 85 per cent interstate on the local.
Q. Yes, I meant that.

The Court: I did not catch that.
Mr. Hill: The local train is made up of 15% intrastate and 85% interstate, and the empty car movement would be assigned 15 per cent intrastate and 85 per cent interstate.
The Court: It would be assigned in the same proportion?
Mr. Hill: Yes, your Honor.

Q. On the through I believe you figured 1½?
A. 1.2% and 98% and a fraction.
Q. That is to say, 1¼% and 98¾% interstate?
A. That is net ton miles revenue freight.
The Court: The net ton mile in the state is only 1¾?
Mr. Hill: 1¾ on the through trains and 15% on the locals.
365 A. 14.6, in our test developed on the local trains.

The Court:

Q. And 85% interstate?
A. Yes, your Honor. You see, our hauls on intrastate business in this state are awfully short.

The Court:

Q. Of course, they are short on the branch line.

A. You see the jobbing centers on this line, Hoxie, Jonesboro, and so on, are so close together that you do not have the radial distribution which you have from Little Rock. We have a jobbing center at Memphis and at Jonesboro and one at Hoxie and it is only a short distance between those points. The haul is very short for that reason, and the state movement is restricted.

Mr. Hill:

Q. I think we have that proposition settled now, Mr. Hamilton. Do you think it it fairly reflective of the empty car movement to take those factors you have just discussed? Isn't it a fact that the interstate empty car movement is much greater that the intrastate?

A. That is true.

Q. I mean relatively larger?

A. That is true. And it is a fact that the empty car movement on through trains is fifty times as great on our railroad as the empty car movement on the local trains. That is true here as well as elsewhere upon the railroad. So one per cent of an item fifty times greater, is much greater to my mind than fifteen per cent of an item which is considered as a factor——

366 Q. I do not understand that.

A. On our railroad—and I have made a study of it as we keep our local train performance and our through train performance separately, every day. We watch our locals. We find—I have not the exact figures here but I can produce them—that the number of empty car miles made in through trains is—I will say, as a minimum, and I can have the actual figures here shortly—fifty times as great as the number of empty car miles which are made on our local trains.

As an illustration, assume that for a given period we had a thousand empty car miles on our locals. We would have as a minimum fifty thousand empty car miles on our through trains. Take our net ton mile percentages and we would assign them to the local 15% of 1000 car miles, or 150 to intrastate; and on the through train we would assign 1¼% of 50,000, or 625. That would be a total of 725 empty car miles charged to the intrastate business. And all the balance of the 51,000 would be assigned to the interstate.

When you divide your empty car miles on the percentage of the net tonnage of your local and through trains you must bear in mind, as I have illustrated, that your local hauls your empty cars only a short distance, and on our railroad the haul is not more than 1/50 of the empty cars that the through trains haul.

So, after all, this division assigns to the interstate business by far the major portion of the empty car haul.

367 The Court: Let me ask you this: Say on account of the increase of local business additional cars are needed. They are brought, of course, from other states. And when the local business is falling off and there is no further use for them, they must, of course, take those cars back to the other states where they belong.

Q. How do you charge those cars when they are brought in and taken back? To the interstate trains?

A. We have no such train, your Honor, as an intrastate train. We have a local train which carries both interstate and intrastate traffic.

Q. Of course, they all do that. But how do you charge those cars brought in solely for the local business? Of course, they are brought in from other states on the through trains and taken out on the through trains.

A. If we could determine—and of course it is humanly possible to do it, but it would be an awful task—just what service each empty car was hauled empty for, I could answer your suggestion.

Q. You charge it now according to the train which carries it?

A. Yes, sir, and according to the tonnage carried on that train.

Q. No matter for what purpose it is used in the state, if these cars are taken out on the through train or brought in on the through train, they are charged to the through train?

368 A. Yes, sir, and if it moves on the local it is charged to the local.

By Judge Hill:

Q. To carry that a little further: Take your special equipment, your refrigerator and tank cars; that, of course, with some small exceptions, is all interstate, isn't it?

A. We would use in Arkansas some refrigerators.

Q. For intrastate business?

A. Yes, sir, but it would be a negligible quantity. That special equipment is practically all for long, through, interstate traffic.

Q. That is what I understand. Refrigerator cars, stock cars, oil tank cars, and so on. I have a list for 1908, and I see it is practically made up of tank cars and special tank cars and special stock cars. Glancing over it I would say the refrigerator and tank and stock cars would take in about 98% of it.

A. That is true.

Q. This special equipment I see made nearly thirty million miles.

The Court: What is the total of revenue from purely intrastate business?

A. In this particular period of 1907?

Q. Yes—well, for the twelve months.

A. I have not the 12 months' figure.

Q. What figures have you?

A. I have the four months ended December 31, 1907, and the twelve months ended June 30, 1908, down to date.

Q. From July, 1907, to June, 1908? Have you those figures?

A. Unfortunately, we did not have those figures.

369 Q. What have you?

A. The four months ended December 31, 1907?

Q. And the next six months?

A. We did not make those figures.

Q. Not for intrastate?

A. No, sir, we were rather poor about that time and we cut the auditor's force and did not make up those figures. We did not begin

again until June, 1909. I have it for all the years following and for the four months.

Mr. Hill:

Q. I see this special equipment made almost thirty million miles at an expense to your road of interstate $245,000?

A. That is for hire of equipment?

Q. Yes.

A. Yes.

Q. That thirty million miles made by it is, I think, about 14 per-cent of the total mileage of your road?

A. I have not the annual report.

Q. Here is a copy of it. (Mr. Hamilton here examines printed annual report.)

Q. That equipment would be practically all interstate?

A. Oh, yes.

Q. And I suppose most of it would be carried on the through trains, wouldn't it?

A. Well, as a general proposition I should say yes, because it is very long haul business.

Q. Then the proportion of the state freight on those through trains would bear its share of the mileage made by this special equipment, wouldn't it?

370 A. That is the whole road mileage you speak of?

Q. I suppose the same relation would continue in Arkansas?

A. Yes, sir, it would get its 1.2 per cent of it.

Q. Take the coal traffic on your road: All the coal mines you have are on the Mansfield Branch, aren't they?

A. You mean in Arkansas, of course?

Q. Yes.

A. Yes, that is correct.

Q. You have a large coal tonnage out of there, haven't you?

A. Very heavy.

Q. Do you know how many mines you have there?

A. I do not know.

Q. I ought to, but I don't. It is a very heavy coal movement?

A. Yes, very heavy.

Q. And it is the only coal movement originating in Arkansas?

A. Yes, sir, originating. But there is a very heavy coal movement in Arkansas. We haul coal from Alabama to Willow Springs.

Q. And also Missouri coal and Kansas coal?

A. Yes, sir.

Q. All the coal that originates in Arkansas originates on the Mansfield Branch?

A. Yes, sir.

Q. That would all be interstate?

A. Yes, sir, by reason of going out of the state at Maney Junction and coming back in.

Q. That return movement of the empty coal cars would necessarily be all interstate?

371 A. It would be on account of interstate traffic, yes.

Q. Take your cotton: All that moves east. Isn't that principally an empty return movement?

A. No, sir.

Q. Do you think you get loads for your cotton cars in the east?

A. We get them when they hit our rails.

Q. They run back from the east largely empty?

A. Yes, sir, but we do not run them empty on our rails, if we can avoid it. The biggest empty car movement we have is getting foreign cars off our line to avoid the per diem charge.

Q. How long are you entitled, under the car service rules, to retain cars without paying the per diem?

A. We are not entitled to retain a car without paying a per diem any time to speak of. The per diem begins at midnight every day.

Q. I thought you were allowed so many days, three or four days?

A. Not on per diem. That is demurrage. That is between the shipper and the railroad.

Q. No, I mean per diem. It begins at midnight on the day it strikes your road?

A. Yes, sir, and after thirty days instead of 45 cents we pay $1.00. That becomes what is known as a "penalty" car.

The Court: That is to prevent the small railroads from keeping the equipment?

A. Yes, sir. It prevents abuse of the equipment.

By Mr. Hill:

Q. Now, coming back to this maintenance of way: Is there any difference in the damage done from the starting of the different kinds of engines, on the way?

372 A. You will have to ask the engineer that question. That is beyond my information.

Q. You have a lot of starting and stopping expenses that are attributable to maintenance of equipment, and an investigation of that: Did you go into the question of the element of damage done by the stopping and starting of the different kinds of engines?

A. No, sir. The engine stops at a station a certain length of time and the conductor so reported to us. It used the track at that station by either standing on it or switching over it, for a certain length of time. A certain portion of that time it was switching freight cars, or loading or unloading passengers. Or it was having its tank filled with water or taking coal, or it was standing there waiting for another train.

We divided that time between what we call "terminal" while it was switching cars, and what we call "line" while it was getting water or waiting for other trains.

We apportioned the use of the track on the basis of the proportion of time the track was used for each purpose.

You are going into the wear and tear on the track?

Q. Yes, the effect on the track of the different classes of locomotives.

A. Perhaps I can explain in this way why we adopted that basis:

It is of record here in the preceding pages, and I think you personally are familiar with it, that it is the expressed judgment of engineers that from 75 to 90 per cent—their estimates vary—of
373 the up-keep of a track and structures is due to elemental causes—the erosion of the bank, the rotting of ties, the deterioration of the rails, and so on, and these would occur if you never ran a train over the track.

Take fences: The running of trains does not wear them out. The roofs of station buildings, the underpinning of the water tanks. The running of trains does not affect their wear. From ten to twenty-five per cent—the judgment of the engineers vary—is perhaps chargeable to wear and tear.

We felt that fairly the use of the track, upon a time basis, as between line and terminal, and upon engine ton mile basis, as between freight and passenger, and upon a gross ton mile basis as between through and local freight trains, might be assumed to reflect that 75 to 90 per cent; and the actual use made of the other ten to twenty-five per cent, which represents wear and tear, was a matter of pure conjecture—and we did not attempt to conjecture about it; we put it all in one pot.

Q. And assumed the gross engine miles as between passenger and freight would reflect 10% of the actual injury, you might call it; and 90 per cent of the elemental injuries?

A. No, sir, we assumed the size of the engine, indicated by its weight, indicated the weight and speed of the train it was expected to pull, and that was the use that the train got out of the track, regardless how the necessity for its up-keep and repair arose, whether
374 elemental or straight wear and tear.

Mr. Hill:

Q. That totally disregards the tonnage behind that engine and it also disregards the speed made, other than you assume the ideal conditions in operation of your engines?

A. I do not say it disregarded the tonnage behind the engine, because that indicates the size of the train, and is one of the prime factors.

Q. You assume that the engine hauls what it could haul behind it?

A. Yes, sir.

Q. That is assuming an ideal operating condition?

A. That assumes conditions we attempt to get; not putting too fast an engine on too slow a train. But putting on that engine a load its size would indicate it should haul at a given speed.

Mr. Moore:

Q. This assumed condition exists on your road?

A. Yes, sir.

Mr. Hill:

Q. Does anybody else get that ideal condition? Is not that conjecture on your part?

A. It is not conjecture. We think we are very close to that assumed condition on the Frisco, as will develop before we finish here.

Q. Isn't it expected that a higher degree of maintenance is required for passenger traffic than for freight traffic?

A. If you saw some of our "red ball" freight trains run on our road you would not think so.

375 Q. Isn't that generally regarded as the case?

A. No, sir. I recall specifically a very recent instance on the Frisco where we have made a very large expenditure of money to get our track and bridges in certain territory in shape to handle heavier freight trains. They were plenty good enough for the passenger trains.

Q. When you make this division between local and through trains on the gross ton mileage, do you take into consideration the extra mileage by the local train when it does station switching?

A. No, sir.

Q. It is a fact it does it, isn't it?

A. Oh, yes; but when it is doing station switching it is not incurring line expense but incurring terminal expense; and that we divide on a time basis.

Q. I think it was developed in the Iron Mountain case that it would be proper to add 50% to the local train expense for the extra switching it did at stations?

A. That is not far out of line.

The Court:

Q. There was no such division made as is sought to be made in this case, as between line and terminal. If I understood Mr. Hamilton correctly, the charge is made now, not on the line, but on the terminal?

A. That is correct. So far as the engine ton mile is concerned, that is a unit for the division of line expenses when the train is running over the railroad. It is not used in any sense when the train is standing at the station. That is divided on the time basis.

376 Q. It was not in the former case?

A. No, sir, they divided on the basis of local and through; they did not have the factors, but we went out and got them in this instance.

Mr. Hill:

Q. That reaches a part of the proposition, but not all of it. Does not this terminal you take care of there also include switching on the sidetracks at stations?

A. Oh, no. It might be out on a main line or at a passing track.

Q. Turn to page 12 of the formula.

A. Yes, we may switch up and down the main line at a way station. There may be no sidetrack.

Q. "A" is train track consisting of main and passing tracks?

A. Yes, sir.

Q. Their maintenance is located direct to line and direct to freight, passenger, or common, according to their use?

A. That is correct.

Q. Does that take care of this item?

A. I will look at my exhibit and see how it has been treated. I thought the detail was in Exhibit 9. I will have to look into that before I answer you. My recollection is we did apportion some to main line on account of the switching done on it. I will have to answer that later.

Q. We also ascertained in the former rate cases, that there was a certain appreciable damage done to the way by the engine, over the ordinary equipment. There was some difference of opinion as to the extent of it. Our exhibit said about 2½ times. Some said less and some said more.

377 A. I think they counted an engine as about 2½ times as much as a car.

Q. That was a factor, no matter what difference there may be as to the extent of it. Do you take care of that by using gross engine miles as a basis of division between passenger and freight?

A. Yes, sir.

Q. In what way?

A. By using the engine ton miles between passenger and freight, it seems to me that is one thing; and——

Q. You think that would take care of it?

A. Yes, sir. I would like to tell you why, if you care to know.

Q. Go ahead and tell us why.

A. If the engine does damage to the track it certainly is by reason of its size and weight, and the more miles it travels the more damage it will do to the track, naturally, because it will cover more track. And the element that is here is the size and weight multiplied by the mileage, which makes the engine ton miles. Not only does that fit in with the size and speed of the engine, but also the weight proposition, because the big engine will do more damage to the track than the little one.

Q. As I recall the testimony, it was largely upon the proposition of speed. Speed entered into all that equation very largely. Now, speed does not enter into this at all, other than as indicated by the size of your engine?

A. That is it, exactly.

Q. That is the only way you have taken care of this item?

A. Yes, that way, by the size of the engine.

378 Q. What are the conditions of the engines on the Frisco?

A. You mean the physical condition?

Q. Yes.

A. At the present time?

Q. Yes.

A. They are in very good shape.

Q. How many of them are in service?

A. I am sorry to say that I haven't the figures here. As my recollection now is, it runs in recent months at least about 90%, 85 to 90 per cent. Of the 10 or 15 per cent that are now out of service quite a large number are what we call "in white lead."

Q. In what?

A. In white lead; that is, engines that have been completely overhauled, put into the pink of condition. As you know, we have

not had a very heavy business in recent months and we have not had call for them, but they are in good condition, ready to go into service now in the immediate future in moving the grain crop.

Q. Do you know what the condition was in 1907?

A. I can give it to you for every week of every year since 1905, but, unfortunately, I haven't the records here. I can send for them.

Q. What was the condition in 1907 as compared with the present condition?

A. I am sorry I haven't the figures and cannot answer. I was not on the road at that time, and without personal knowledge I would have to depend on our motive power superintendents' reports.

Q. Haven't you quite a number of locomotives at the shops at Springfield that are out of service, fit for nothing except
379 the scrap pile?

A. Not now.

Q. When did you scrap them?

A. Well, they have been accumulating for several years and in the last twelve months or more, about that time, we have scrapped a good many of them.

Q. I have here a report of the Interstate Commerce Commission to the United States Senate on the Frisco affairs, with which I suppose you are familiar?

A. Yes, sir; I know there was such a report.

Q. I want to read from page 184. "Reports from the Master Mechanic, dated July, 1913, show nine locomotives set aside to be scrapped, some of which have been retired from service since July, 1908. The scrapping of these locomotives has been deferred apparently to avoid making that charge to operating expenses. At different times since August, 1908, 28 additional locomotives have been set aside which are considered unfit for service and only fit to be scrapped. They have not been scrapped because of the effect that action would have upon operating expenses. The total amount involved in these locomotives is $174,465.78, which sum, less salvage, would be charged to operating expense if the Commission's classifications were adhered to at the time of scrapping."

That would make nine and twenty-eight——

Mr. Moore (to Mr. Hill): What is that you are reading from?

Mr. Hill: Pages 184 and 185 of the report of the Interstate Commerce Commission to the Senate, dated January 20, 1914.

380 Q. That would make thirty-seven locomotives of a total value of $174,465.78, that are only fit to be scrapped, according to this report?

A. Yes, sir; that is a small percentage out of 1159 locomotives that the railroad owns. It is not a bad showing at all.

Q. How many more locomotives are in the condition of these, does that cover all?

A. There are not that many in that condition today, Judge Hill, because since the receivership, which took effect May 27, a year ago, we have scrapped a great many of those engines that you refer

to. I would like to call your attention to this fact in that connection: When we scrap an engine, dismantle it, under the Interstate Commerce Commission accounting rules we are required to charge to an account which is called "locomotive renewals," account No. 26, Interstate Commerce, the value of that engine on our books, less any salvage he may realize. These thirty-seven engines that you speak of, that have been accumulating since 1908, I think you said, if they had been scrapped as they were condemned, year by year, that charge would have been made at the time they were scrappd, but we swallowed that whole charge since the receivership a year ago, so that this current fiscal year has stood the burden of that dismantling, that renewal charge, so-called, to the benefit of all the years that preceded it, when these engines became decrepit, and we have lightened the expense of the previous years to that extent.

381 Q. In making up your property values on locomotives for 1907, these thirty-seven locomotives would be included, would they not?

A. Yes, sir; but I understood you to say that they had been condemned since 1908. That is what the report read.

Q. I don't think it said that.

A. That is my understanding of it.

Q. It says, "should have been set aside, which have been unfit for service and are only fit to be scrapped."

A. You said something about 1908.

Q. I read that at different times since 1908, twenty-eight additional locomotives have been set aside which have been unfit for service.

A. Yes; they were set aside since the four months ended December 31, 1907, so undoubtedly they were in service prior to that time.

I happen to have a personal acquaintance with those engines that you speak of. My activities have been centered around that Springfield shop pretty much in recent months, until this rate case overtook me, and I know why they were set aside. There are a good many of them that we could take today and, with reasonable expenditure, put into serviceable condition, but for this obsolescence that has overtaken them; they are too small for our operating conditions today.

Q. They are not in operation now?

382 A. No, sir, most of them have gone to the junk pile since this last year, and this last year's expenses have been charged to them; they ought to be charged in the back years.

Q. Take some of those thirty-seven engines that were making this engine ton miles in 1907: Do you think they could be operated up to the ideal conditions?

A. If we thought so they would not be in the scrap heap; no, sir.

The Court: If they have been charged off that would reduce the net income that much more.

Mr. Hill: What ought to have been done was to charge off so much per year.

The Court: If it had been charged off in 1907, there would have been that much less net profit in 1907.

Mr. Hill: That ought not to have been charged off in any one year.

The Court: The fact that they are charged off now, since the receivership, does not affect this——

Mr. Hill: I don't think it affects it at all. The point I am making is this: Those engines, according to this report, were on their last legs in the fall of 1907: Could they carry their full capacity and operate according to ideal conditions at that time?

The Witness: I think so.

The Court: As a matter of fact, does it not indicate that in order to maintain the value of the stocks that the net profits were reported as really larger than they would have been if these things were charged off? So in reality they made less net profit on all their business than——

383 Mr. Hill:

Q. What is the average life of an engine, Mr. Hamilton, something like forty years?

A. Twenty-five to thirty years.

Q. There ought to be a depreciation charge of 2½% per year?

A. No, sir——

The Court: I presume they did; every manufacturing concern does. That helps the state to that extent, that there is a greater net profit than shown.

Mr. Hill: But it asks a return upon property that is not of the value that the books show it to be, they put in the book value.

The Court: I know, but there has been an agreement that the valuation of the State Taxing Commission was to be adopted.

Mr. Hill: I did not know that.

Mr. Moore: No, that applied only to the Cotton Belt and Iron Mountain.

The Court: Then I am mistaken. I was under the impression that in all of these cases the valuation of the property was agreed to be taken as fixed by the State Board, double what it is assessed for.

Mr. Hill: You brought up that matter the other day and Mr. Moore said he probably would amend his bill in that respect. I am willing to take double the assessment in this case just as we did in the other.

Mr. Hamilton testified here the other day that these values upon the calculation made were book values——

384 The Court: I understand. I was under the impression that applied to all of them. I know that in every one of the bills that was the allegation of value.

The Witness: Judge Hill, I perhaps misunderstood your question: You asked me if the value of these engines, whatever it was—

I think you said $174,000—was not included in my exhibit in which I had set up the value in the State of Arkansas.

Mr. Hill:

Q. Yes.

A. Yes, sir, and the assignment to Arkansas, as per Exhibit No. 27, was 9.13 per cent of that—$15,660—in a total of $7,500,000.

Q. You think these engines, on their last legs, would represent ideal conditions in regard to the load behind them?

A. I do, yes, sir, because, as I said, I happened to have an acquaintance with these particular engines that we had on what we call the "ghost" track out there back of the Springfield shop. I went all over them with our motive power superintendent, for our operating vice-president, before they were scrapped. They were retired from service, not because they were not in good physical condition, or could not be put in good physical condition with ordinary repairs, but they had become too small for the requirements of our service. As long as they were in service we kept them up to practically 100% of physical efficiency, and we got out of them 100%, or very close to it, in our operating practice; so they were not scrapped because they were decrepit, but because they had become obsolete as to size and type.

385 Q. That is rather different from this report, isn't it?

A. I don't know what the Interstate Commerce examiners reported. They made their examination in the office at St. Louis. I happen to know the engines themselves.

Q. This says here: "At different times since August, 1908, twenty-eight additional locomotives have been set aside which have been considered unfit for service and are only fit to be scrapped."

A. That is right, sir. That is exactly what I meant when I said they had become unfit for service: They were obsolete for the traffic we have on our railroad, Judge Hill. If you saw them you would know what I mean. They were little bits of teapots.

Q. You would not think they represent ideal conditions, with the load behind them?

A. They would have, because they were kept up to their little potential effort, small as it was, in practically one hundred per cent efficient shape every time they got a general over-hauling. The size of them would be indicated, it seems to me, by the fact that there were twenty-eight and they were worth only $174,000, less than $7,000 a piece.

The Court:

Q. They had some value, I suppose; they could be sold for something to some small roads?

A. Some of them were, yes, sir; some of them, of course, we had no market for and scrapped them and realized on them. There were a good many of them, possibly, that we could use in the repair of other engines, and we scrapped some of them for that reason,

386 to keep investing new money in new material.

Mr. Moore: Mr. Hamilton tells me there is some further reference to the Interstate Commerce Commission reports, in connec-

tion with what Judge Hill read a while ago, that might be relevant now, and I would like for him to state it.

The Witness: The report states that these engines were set aside because they were unfit for service: When Examiner Brown, of the Interstate Commerce Commission, came to our office to make the examination upon which that report is based, he was turned over to me to furnish him with data as to the operating department. I recall distinctly that I got for him our motive power superintendents' engine reports. Those reports show each week and at the end of the month so many engines in active service, so many awaiting the shop, so many in the shop, and so many set aside. That is the exact language of the report—"Set aside engines," and those reports were what Mr. Brown got his information from. He did not know why the engines were set aside, only that they were set aside. In fact, I furnished him with that data myself, and, to reiterate what I previously said, their condemnation was brought about by reason of the small size, not by reason of being decrepit.

Q. It is on Mr. Brown's report?

A. The report to the Senate?

Q. Yes.

A. Mr. Brown made the data—I helped him make some of it.

387 Q. This report was made upon the entire hearing had by the Commission. They took testimony and sent out examiners, also.

A. Yes, and the examiners got the information from me in the way I have told, as to our operating matter.

Mr. Moore: That is the way they take testimony, by sending examiners out.

Mr. Hill: They took testimony in St. Louis lasting for several days——

Mr. Moore: Relating to these matters?

Mr. Hill: Relating to this entire Frisco matter, and this is the report of their hearing. Mr. Clark went to St. Louis and took testimony there, orally, and sent the examiners out on the road for the other information.

The Witness: And the examiners were turned over to me when they came. I got them that information and the other information. I know the reports the examiners had, and what they say.

Q. Turn to the formula, at pages 9 and 9-A—"Steam locomotive repairs."

A. Yes, sir, I have it.

Q. The original formula called for the cost of running a pair of locomotives to be assigned to the state on a basis of the mileage of the individual locomotive in a current month, and the cost of general repairs to the locomotive should be assigned to the state on the basis of the mileage of the individual locomotive since the last general repairs.

A. Yes, sir.

388 Q. (Reading:) "The cost of repairing damages caused by collisions, derailments and similar accidents should be localized to the extent of the damage done."

That was modified, as I remember it, I am not taking time to read it now, to the extent of throwing them into a pool in the state: Is that correct?

A. No, sir; it went further than that. If you follow the formula as it is printed on page 9, you would not have any charge for locomotive repairs, to speak of, in this particular period, perhaps, and for very good reasons. The engines that run in Arkansas get practically no repairs within the boundaries of that state. We have a roundhouse at Fort Smith, a little one at Hope, an engine shed at Jonesboro—there are no repairs there—and a small roundhouse at Harvard; no repairs were made there, the engines are taken over to Memphis. Those engines get their repairs, in reality, at the general shops in Springfield. We followed the plan that is laid out here on pages 9-A and 9-B, because we felt that it gave us a fairer charge for locomotive repairs within the state of Arkansas.

Q. That was throwing them all in a lump?

A. The modification of the formula explains it in detail. No, sir, it was not throwing them all in a lump, in that sense of the word.

Q. In each class?

A. In each class.

Q. Through each class?

A. Yes, sir.

Q. That would assume that every passenger locomotive had the same amount of repairs as every other passenger locomotive, would it not?

389 The Court:

Q. According to the mileage——

A. Per mile run, your Honor, but that is hardly an exact statement of the facts. In the first place, we did not keep separate a detail of running repair costs by individual locomotives at that time. By "running repairs," are meant the light repairs that are made at roundhouses, just enough to keep the engine going and in good shape between general shoppings. So we couldn't assign the running repair costs to the individual engines, these light repairs (class 4, we call them) but we did have, and have had for years, an account, or, rather, a record of the general over-hauling costs and general repairs, or, as we call them, back shop repairs, of each individual engine. We also had a record of the mileage that each individual engine made, in each class of service. When the engines were operated during this period—that is, between the last two general shoppings—in one class of service only, of course, the general repair costs automatically attached themselves to that class of service. Where they were operated, say, in freight and passenger service, during the same period, we couldn't tell how much damage the passenger train did to the engine, nor how much the freight did, so we assigned that on a pro rate basis per mile and we found out in that way the average cost per mile for a general over-hauling of an engine, freight and passenger, switch and work, according to the classes of service. Having determined that we took the actual mileage made by each

390 engine within the state of Arkansas, and attached to it the repair cost per mile run for its class of service, as determined

by canvassing the repair cost of those engines, between their last two general shoppings.

Mr. Hill:

Q. The practical effect of it is to treat the engines in each class of service upon the same basis, is it not?

A. Per mile run, yes, sir.

Q. And these ancient relics referred to in the Interstate Commerce Commission report, and a new engine, would be apportioned the same amount per mile as repair cost?

A. Yes, sir, and I don't believe, from the knowledge that I gained in making these averages, that there is any wide fluctuation. That little engine got heavier repairs than the big engine, perhaps, might, but, being much the larger engine, the cost was not so materially different, and the newer engine, of course, got less repairs, that is true, than the little engine, to put it back in a one hundred per cent condition.

Q. Take item 48, page 9.

A. Yes, sir, I have it.

Q. "Injuries to persons": That is apportioned on an aggregate of the amounts assigned to the locomotive, passenger, freight car and work equipment repairs in each state, as I understand it?

A. That is correct.

Q. That would put 36% of it to line and 63% of it to terminal, would it not?

A. If that was the division of the equipment repair cost
391 according to the use of equipment in line and terminal service, it would.

Q. That is what it is?

A. I had the figures here, I can tell you.

Q. 36.03 and 63.97 is my memorandum of it.

A. 63.97 being what, line or terminal?

Q. Terminal.

A. Yes, I think that is about right.

Q. Page 14 is what I refer to.

A. Yes, sir, I recall it. 36.03 line. That is freight train car repairs, and 63.97% terminal. That is not true of the locomotive.

Q. What would be the relation of the locomotive?

A. The time devoted to line and terminal service.

Q. Did you not add the locomotive to this other and use the aggregate as a factor to divide this item?

A. Yes, sir, but that does not make the locomotive proportion 63 and 36.

Q. I don't understand what you mean by that. I understand this item is divided on the basis of the aggregate of these other charges you mention here, including the locomotive?

A. Yes, sir, it is.

Q. I find that that produced 36.03% and 63.97%.

A. That is between cars, line and terminal, and you are discussing over here the assignment to states, on page 9.

Q. This begins at page 9, that item, and follows to page 14, as I remember it.

A. Page 9 is the apportionment to states.

Mr. Moore (to Mr. Hill:) Look at the headings and you will see the purpose of it. On page 9 it is the division between states, and on page 14——

392 Mr. Hill: That is where they get the first item.

The Witness: There is not any connection between the two in the use of percentages; they are two propositions, separate and distinct. I grant, the same principle underlies them both.

Mr. Hill:

Q. You began on page 9; you ascertained your proportion to Arkansas as shown on page 9, is that correct?

A. You ascertain the assignment of the charge for injuries to persons to the state of Arkansas on the basis of your charge to Arkansas for the entire cost of locomotive, passenger car, freight car and work equipment repairs. That is the well established theory of the overhead expense following the direct.

Q. That is your primary figure for Arkansas?

A. Now you have your expense into Arkansas. That is one subject.

Q. Then turn to page 14.

Mr. Moore (to Mr. Hill): Turn to page 12 and you will find there the division between line and terminal, and that leads up to 14.

Mr. Hill:

Q. Then you divide between line and terminal on a basis of thirty-six and sixty-three?

A. Account 48?

Q. That is the way I have it noted.

A. That is wrong.

Q. (Reading:) "After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each state, apportion on basis of the aggregate of such charges."

A. Absolutely, but you don't divide your locomotive be-
393 tween line and terminal, 36.03 or 63.97. That is the freight car division.

Q. On what basis do you divide the freight?

A. Upon the basis of time which the locomotive puts in——

Q. Do you know what that would amount to?

A. I haven't it here. This record is so voluminous I will have to look for it.

Q. On passenger cars, freight cars—no, it would not have passenger.

A. No, sir.

Q. On freight and work——

A. Yes, sir.

Q. It would be divided between 36.03 and 63.97?

A. No, sir, only the freight cars.

Q. Upon what per cent would the passenger car be divided?

A. That is shown over there as 64.94% to line and 35.06% to terminal. The percentages are reversed. Your locomotives as already stated divide—I think about 76% line and 24% terminal, as near as I can recall it.

Q. You use those three percentages instead of using the one?

A. No, we make the division of locomotive repairs 76 and 24; freight train car repairs, 36.03 and 63.97, and the passenger train car repairs 64.94 and 35.06 per cent as you have them there, and add up those results. That is the distribution of the direct expenses.

Q. You add up those results?

A. And determine the percentage relation of the two totals, line and terminal.

Q. In this account of injuries to persons?

A. You add this account of injuries to persons of those
394 per cents. That is the cost accounting theory of dividing your overhead, or unlocatable, on the basis of direct expense.

Q. What relation has this item of injuries to persons to these various other elements and the various percentages which you have just given?

A. The relationship is this: That is the injuries to shop men, car repair men, machinists, blacksmiths, boiler makers, etc.; they are injured in the prosecution of their duties in the repair of locomotives, freight cars, passenger cars and work equipment. For instance, a man may be running a lathe in a machine shop and during the course of that day's work he may have turned down a pair of driving wheel tires for an engine, or an axle for a passenger coach, and so on, and sometime during the day he cuts off his thumb. We pay him for it. It is not possible, in our scheme of accounting, to tell whether we ought to charge that cut off thumb, in the loss we sustain and charge to this account—injuries to persons—to the passenger car axle or the locomotive driving wheel, and so we take the total charge for expenses arising from injuries to our shop employes, and we spread it on the basis of our locomotive, passenger car, freight car and work equipment repairs. That is the indirect expense following the direct, which is a well established cost accounting theory.

Q. You define terminal expenses here as being the originating, terminating and handling of traffic at stations and to and from trains——

A. That is correct, sir.

395 Q. Including the receipt and delivery of traffic onto your foreign lines?

A. Yes, sir.

Q. What is the relation between the payment for that cut off thumb and your terminal expense?

A. Some portion of the repairs of freight cars, some portion of the repairs of engines, some portion of the repairs of passenger cars and of work equipment is chargeable to terminal service by reason of those equipment units having been used in terminal service, and consequently the repair cost being apportioned to terminal service, because they have rendered such service, this overhead expense of injuries to persons follows into the terminal group. It seems to me that is the simplest kind of cost accounting.

Mr. Moore:

Q. These injuries occur in all departments of the service?

A. No, sir, this is only the mechanical department item.

Q. This is incurred in all the departments where the men are working in that shop?

A. That is it.

Q. And all the equipment for service for every purpose?

A. Yes, sir. It would be a superhuman task to keep track of what a man was doing when he was injured, but he is in that shop which does all these things, and we spread it over all of it.

(To Mr. Hill:) That item of expense in the 1913 test period, was $800, line and terminal.

Mr. Hill:

Q. Take page 9, items 43 and 44.

A. That is work equipment repairs—you will have to
396 take No. 45, too, Judge Hill; that goes with it.

Q. Yes, Nos. 43, 44 and 45.

A. That is work equipment repairs, renewals and depreciation.

Q. Then that is followed up in—that is assigned to the state?

A. Yes, sir. Then you get your assignment between line and terminal; that is on page 14.

Q. You get the sum assigned to the state on the car mileage, where available, and the work train mileage where the car mileage is not available?

A. We use the work car miles; we had that.

Q. The work car miles?

A. The smallest unit, yes, sir.

Q. Then you divide between line and terminal, page 14?

A. Yes, sir, on the basis of accounts 2 to 17, maintenance of way and expense.

Q. On maintenance of way expense?

A. That is correct.

Q. What relation has the work train mileage to the use of these various articles that compose this lost? I have it here somewhere.

A. I can give them to you.

Q. Pile drivers, and steam shovels.

A. You said, work train mileage: We used the work car mileage.

Q. Work car mileage?

A. Yes, sir, individual units.

Q. Take a pile driver that is used in Arkansas: what relation would the mileage have to that of a work train?

A. Well, the pile driver is not moved around over the railroad while it is at work, but it is moved around over the railroad from job to job.

397 Q. What is that?

A. I say, the pile driver does not move around over the railroad while it is driving piles, but it does move up and down the railroad from one job to another. There are other items of work equipment——

Q. The mileage would not be indicative of the use of the pile driver, would it?

A. No, sir, but we were not able to find anything that more nearly approximates its use. I don't think anybody else can unless he counts the number of piles it drives, and that is beyond us at this time——

Q. I see here "steam shovels:" Mileage would not be indicative of their use?

A. No, sir. The same proposition applies as on the pile driver.

Q. Wrecking outfits?

A. Yes, sir, it would; indeed it would. That is the fellow that moves over the railroad very actively. He don't stay long at one place.

Q. It might depend upon the extent of the wreck; a wreck at one place might keep him a long time and at another place a very short time, and would be the same mileage?

A. That is a hair-splitting distinction.

Q. I don't think it is, I think it is a very substantial one. I know, as a matter of fact, that is just what occurs. If you have a serious wreck your wrecking outfit stays there until it is cleared up, and if it is a small one——

Mr. Moore:

Q. Does this localized repairs, on page 9, refer to it?

A. That means if you bust up work equipment in an accident you charge it to the state in which that accident occurred.

398 We were not able to do that and so state here in the formula.

Mr. Hill:

Q. Here is one of your items that I wish you would get some mileage attached to it today—the snow plows.

A. We don't have any snow plows on the Frisco Railroad.

Q. I see that is listed there and I was in hopes we might have some of them today.

A. No, sir, we don't have them. When we need any snow plows we put sheet iron on the pilots of our engines and that serves the purpose.

Q. Mileage would not be any factor indicative of the use of the camp cars, would it?

A. Yes, sir, they move around a great deal.

Q. I know they do; they go to different places and stay there for quite a long length of time.

A. You are assuming that; they may stay there only a day. We move our extra gangs around pretty often sometimes, but I prefer you should ask Mr. Jonah about that; he will be along here presently, and he is our chief engineer.

Q. After you get it assigned to state in this mileage basis then you split it up according to the assigned maintenance of way equipment?

A. Yes, sir. But we have not covered all the classes of work equipment; I don't think that is covered, by any means.

Q. What others?

A. Take ballast cars; they are active as a flock of ants, carrying ballast up and down the railroad.

Q. You think the mileage of those ballast cars would
399 indicate the amount of use that the railroad got out of that?

A. I don't think there is any better index, and take our lidgerwood unloaders that go with them; they move up and down the road very rapidly, actively.

That one instance that you took there, the wrecking cranes, they make lots of mileage when we have wrecks. If they are not making mileage they are not in service. We don't leave our main line blocked very long, a few hours at the most. Aside from the pile drivers and steam shovels and, perhaps, the camp equipment, they get pretty active service out of work equipment on a mileage basis.

Q. On page 14, "Stationery and printing" is assigned between line and terminal?

A. Yes, sir.

Q. It is assigned on the basis of the aggregate of assigned charges?

A. Yes, sir, locomotive, passenger car, freight car and work equipment repairs. There is another item there that might go with it, "Other expense."

Q. What is in that "Other expenses?" I have a note here to question that.

A. I can tell you that in a minute.

Q. It is sort of a junk shop?

A. No, sir, it is an Interstate Commerce Classification which prescribes what shall go in there. I will say it is the items that are not properly chargeable to other maintenance of equipment accounts, it is odds and ends; it is a negligible quantity, as far as——

Q. Those items are charged on this overhead proposition according to assigned charges?

A. Yes, sir; they follow, in reality, the assignment of ac-
400 count No. 24, and the same division is prescribed for them, word for word. No. 24 is the superintendence of the mechanical department.

The "Stationery" includes time cards of the employes engaged in these locomotives and car repairs; the superintendent's office stationery and requisition blanks, and things of that kind, which really attach themselves right to the "superintendence" account. I think any cost accountant would subscribe to that.

Q. On page 31 there is passenger train cars—repairs, renewals and depreciation.

A. Yes, sir.

Mr. Moore:

Q. What number is that?

A. That is Accounts 31, 32 and 33, Mr. Moore.

Mr. Hill:

Q. Do you take into consideration in this any use of the passenger cars by your trans-state passengers at stations?

A. You mean where they are continuously trans-state——
Q. Yes.
A. —on our railroad?
Q. Yes.
A. Not leaving our line at a junction point in Arkansas and going elsewhere on another road?
Q. Well, there might be trans-state in one way and trans-state in another.
A. Yes, sir.
Q. Take the main line from St. Louis to Texas, passing through Fort Smith: In that case it would be trans-state, probably, without getting off the train?
A. Yes, sir.
Q. And it might be trans-state by coming in on a branch line and changing two or three times in a state?
401 A. Yes, sir.
Q. I want to get at the way you treat those different classes of trans-state passengers.
A. This is the terminal expense that you are dividing here, or, rather, the terminal proportion of the maintenance of passenger cars. We have counted the passengers which got on and got off our cars, by reason of the origin and destination of their journey on our line. If a passenger rode from Kansas City to Memphis, let us say, on our line, he would be trans-state. He would not be counted here because he did not have any terminal use, in the sense we treat it, of our passenger cars in the state of Arkansas. We did not receive him as a passenger in Arkansas, nor did we deliver him at the end of his journey as a passenger in Arkansas.
This, you understand, is not the terminal expense in the station sense: it is the use of the passenger car.
Q. I understand, but the same proposition goes further in the other items, I believe?
A. I don't know what you mean by "the same propositions," Judge Hill.
Q. Go ahead with your explanation.
A. That is one illustration.
Q. Suppose he originated on your line and had to change cars a time or two: He would still be a trans-state passenger?
A. I was coming to that. If he came down from Kansas City, let us say, to Hoxie on our line, and got off our train there
402 and got on the Iron Mountain to go out into Texas, he would be a trans-state passenger, but he got off our train at Hoxie. He is counted here.
Q. He would be counted there because he was delivered to a foreign line?
A. Because he got off our train there, yes, sir.
Q. Suppose he stayed on your rails but a different train and used a different station.
A. Let us assume another way, then: That he came down from Kansas, we will say, and——
The Court: And goes to Cape Girardeau by way of——

The Witness: Yes, and changes cars at Hoxie and goes up to Cape Girardeau.

Mr. Hill: And then went to Memphis.

A. Wherever he went. He came on our train No. 105, let us say, to Hoxie: On the train sheets which we used in our test period we got him getting off that train at Hoxie. Then he got on the local and went to Cape Girardeau. We counted him when he got on the local.

Q. In that item?

A. As a passenger handled on and off trains.

Q. As a passenger handled?

A. Yes, sir.

Q. I don't so understand your formula. I wish you would show me where in it you put it that way. I understood it just the reverse.

A. We did not handle him in counting passengers in this end of it on the basis of how he was ticketed; if we had we would not have known whether he went around by way of Hoxie or not, but we checked him on the train he was on and got off, and
403 we checked him on the next train he got on from the ticket collections and reports.

On page 31, it says, "Apportion the terminal expense of a passenger between intrastate and interstate"——

Q. Page 31, you say?

A. Yes, items 31, 32 and 33.

After you get your passenger train proportion to the mail, etc., out on the car foot mile, you divide the passenger proportion between state and interstate on the basis of the respective number of passengers getting on and off such equipment in the state, and we checked him on and checked him off.

Q. Did you check him out at each station although he had a through ticket through that station?

A. If he left one train the conductor reported him as leaving the train there. When he got on the other train—let us take this illustration via Hoxie, coming from Kansas City and going to Cape Girardeau: When he got on the other train at Hoxie he was reported as getting on there.

In my exhibit- No. 2-A to K, there is a report that is required of our conductors, that is instructive on that head. It is Exhibit 2-C, which is the report of transportation honored but not lifted. Here is a man that has a through ticket, let us say, from Kansas City to Cape Girardeau, who gets on our train No. 105 at Kansas City and rides to Hoxie: The conductor on that train filled out this report (Exhibit No. 2-C). We show over here in the first column his train number and time, and, of course, the date. "Number of passengers" 1; "Ticket issued at" Kansas City; "Honored on this train"
404 from Kansas City to Hoxie; "Final destination of ticket" Cape Girardeau; "Honored in coach or Pullman."

Although that conductor did not turn in that ticket to us, we knew when that trans-state passenger got off that train at Hoxie.

Then he gets on the other train and the conductor (because he

goes to the end of his journey at Cape Girardeau) lifted the ticket. That ticket came in and we had the actual ticket, so we did check him on and check him off. We kept him separate by reason of the information we had as to where he bought his ticket; his origin and destination; how he traveled, from and to, and what he traveled in, coach or Pullman. We kept him separate as a state or interstate, coach or Pullman passenger, and we knew where he rode on every train he rode. We checked him on and off. There was no conjecture about it. We had the actual figures on each train; before the auditor got hold of the tickets we took them as the conductor turned it in.

Mr. Moore:

Q. This trip you speak of would be covered by two reports, one, a report of the conductor who brought him to Hoxie, and that report would show where he got on and got off at Hoxie?
A. Yes, sir.

Mr. Hill:

Q. Anf from Hoxie to Cape Girardeau there would be a similar report——
A. No, sir, the conductor that ran from Hoxie to Cape Girardeau would lift his ticket and then he would have the ticket to tell for itself; that not only tells where he was from and where he—where he went from and to, but the ultimate destination and origin
405 of his journey, so he could be classified as trans-state, interstate or intrastate, and whether he rode in a coach or Pullman car.
We went into a lot of detail in that. It is voluminous to explain, but it is an effort to get down to the actual facts on this thing.

Mr. Moore:

Q. What do you mean by "Honored on this train from and to?"
A. That would read in this instance we have in hand, "From Kansas City" to "Hoxie, Arkansas."
Q. The conductor that carried him from Hoxie to Cape Girardeau would make a report——
A. No, sir he would not make that report, because he lifted the ticket.

The Court:

Q. And when his ticket came back that would show it?
A. We had the ticket itself, that shows it.

Mr. Moore: I understand that now.

Mr. Hill:

Q. "Station expense" and "Station employes," item 63, page 26: Does that take trans-state?
A. Yes, sir.
Q. In what way?
A. That is line passenger expense, the station proportion

of it. That is to be assigned, the formula states, on a basis of respective state and interstate passenger miles. We counted every trans-state passenger as an interstate passenger.

The point I am making in these explanations is, that while we took count of the trans-state passenger, we did not set him up separately; we called him an interstate passenger.

Q. Then your calculation on interstate passenger miles would include trans-state on that item?

406 A. Yes, sir. That, of course, is the line proportion of passenger expenses, the station employes——

Q. Where is the terminal proportion of that same item?

A. That follows, I think. I will see what the index says. (Examining formula.) Page 31 is where it begins—on page 32, Judge Hill.

Q. Page 32, item 63?

A. Yes, that is it.

Q. That would be on the basis of passengers arriving and departing at that station?

A. Yes, sir.

Q. Take the illustration the Court gave of the man going from Kansas City to Cape Girardeau and changing at Hoxie: He would not get a proportion of that expense?

A. Oh, yes.

Q. How?

A. Because he got off the train at Hoxie and we counted him when he got off.

Q. You are counting him as arriving and departing at that station?

A. Yes, sir.

Q. In some of these places you exclude trans-state and I don't know where your exclusion runs to.

A. I don't remember excluding them. There are some references to that here. As to those items you have asked about, that is a correct statement of how they were handled.

Q. They are excluded in some and included in others; that is what I am trying to get at.

A. Where the trans-state passenger was thrown out you will find a modification that covers it. I recall writing it, but I can't just put my hands on it.

407 The Court:

Q. The trans-state passenger who does not change cars is merely charged with the mileage going through the state?

A. Yes, sir.

Q. There is no terminal charge, or anything like that?

A. That is what I had in mind.

Q. Of course, no report has to be made there because the ticket returned.

A. We went on the theory that if he did get off and use the station it was not essential to his journey through the state, but where he had to change cars we counted him because it was.

Q. Suppose he gets off and takes a little walk on the platform: That you do not notice?

A. No, sir.

Q. It is only where he uses it for the purpose of taking another train?

A. Yes, sir.

Mr. Hill:

Q. I want to find out whether the man who has a stop-over privilege is included as trans-state?

A. Yes, he is counted by the conductor when he entrains or detrains, as the case may be, regardless of who he was, but we had the story as to his journey, so we could classify it.

The Court:

Q. Wherever the conductor takes a ticket and punches it——

A. Yes, he had the ticket, or a report of the ticket if he did not take it up.

Q. The first conductor turns in the ticket and the second con ductor turns in the stopover?

A. Yes, sir, and he would report him then when he turned in the ticket. I don't recall any such instance, but he would report
408 him as having stopped over, left the train.

Mr. Hill:

Q. Take page 25, accounts 31 to 33.

A. Yes, page 25, accounts 31, 32 and 33: That is "Passenger train cars"—"Repairs, renewals," etc.

Q. Before I ask about that, I want to know if I understand your express and mail proposition. You testified about that the other day, as I recall it, that you had set them aside on both sides, expense and revenue: Is that correct?

A. That is correct, sir.

Q. Entirely as was done in the other cases?

A. Exactly that, except that there I think they used a car mile and we use the lineal car foot of miles.

Q. At any rate, you took a factor to eliminate the mail and express on both the expense side and the revenue side of the problem?

A. We did, and the units are very much akin, too.

Q. This says,

"Apportion on basis of car foot miles of such cars, the repairs, renewals and depreciation on Company (home) cars included in these accounts to passenger, mail and express, respectively, and subdivide the passenger proportion between day coaches and other cars on basis of respective car foot miles. The proportion for the day coaches thus ascertained to be subdivided on the respective state and interstate passenger miles carried in such cars. The proportion for other cars to be divided on basis of total state and interstate passenger miles in all cars:"

On the face of it that looks like you are carrying your express car expenses divided between state and interstate there.

A. Oh, no.

Q. That is the way it reads.

A. No, sir. Your very first premise sets aside the mail and
409 express proportion.

Q. Sets aside the mail and express proportion?

A. And subdivides the passenger proportion.

Q. As divided between day coaches and the car foot?

A. And subdivide the passenger.

Mr. Moore (to Mr. Hill): Let him explain what "Other cars" means.

Mr. Hill: That is what I wanted to get at.

A. I beg your pardon, Judge Hill; I misunderstood you. The train would consist, as you know, of the Pullmans, which we do not repair except in the case of an accident. We can leave those aside for a minute. Baggage cars used, perhaps, exclusively for baggage, or, perhaps, jointly, but baggage and express and, let us say, mail cars, or combination mail and baggage, and, perhaps, a dining car.

We set out on a car foot mile basis the mail and express space. Then we had left the space that carried baggage, the dining car, the coaches and the Pullmans. The "Other cars" refer to that baggage and dining car proposition, which serve the passenger.

Q. That is what I supposed, but it reads as if you referred to all the cars in the train.

A. No, it says to divide the passenger proportion. That is after you take out the mail and express.

Q. All I want to know is that you have not included the mail and express?

A. No, sir, we threw it out first.

410 Q. That puts on the dining cars the expense of the dining car in proportion to the passengers carried on the Pullmans and day coaches evenly, does it not?

A. It divides the expense of maintaining the dining car, and that is also true of the baggage car, the baggage space, on the basis of all the passengers one mile who rode in the train, whether they rode in the Pullman or in the day coach.

Q. It is not a well known fact that the passengers on the Pullman cars are the principal patrons of the dining cars?

A. I don't know. The day coach people eat pretty regularly on our line; maybe that is because we have Fred Harvey meals there.

Q. But the average run of your intrastate passenger here is only twenty-three miles: They are not going to do very much eating in those twenty-three miles, are they?

A. I don't know what the journey of the intrastate passenger is. What we talked about this morning was the haul of a ton of intrastate freight. I haven't those figures.

Q. I thought you had some figures. I have it noted down here that he goes twenty-three miles. As a general proposition, the Pullman passengers patronize the diner, do they not?

A. I cannot say, especially, Judge Hill. I do know that most of the Pullman passengers are, perhaps, well enough off to eat in the

diner, and perhaps the coach passengers may not be. But the thought is this, and the theory underlying this division where we
411 spread the cost of the dining car over all the passengers, that the car is there to serve them all.

Q. If a passenger is not going to ride but twenty-three miles he is not going to get much service out of the dining car.

A. But it is there for him.

The Court: Twenty-three miles is the average: That does not mean that none go a less distance or a further distance.

Mr. Hill: That would be the average condition.

The Witness: I confess we have been negligent in that we did not check the intra and interstate passengers in and out of the dining cars. We did most everything else on the passenger train.

Q. You have a business car on there?

A. That is correct.

Q. I don't know whether it is in this particular item or not.

A. Yes, sir.

Q. That means your superintendent's car, I suppose?

A. He don't ride passenger trains very much; the general officers, occasionally.

Q. What is the business car?

A. It is an official car our executive officers ride—the vice-president, or our chief executive, perhaps our general superintendent, but the division superintendent you usually find plugging along on the end of a local freight nine times out of ten. In fact, my office is charged with the duty of watching the expenditure that those men make for the operation of those cars, and I know pretty
412 well where they go; they get on to an extra freight, or a local, most of the time.

Q. This item carried in this passenger as a business or official car, is distributed over intrastate and interstate passengers, is it not?

A. Yes, sir.

Q. When that official is in that car incurring that expense, is he not incurring it for the freight service as well as the passenger service?

A. Yes, sir; there is a freight crew, possibly, up in the head end of that train the smoking car, dead-headed, for the freight service.

Q. It is a very small item, I suppose, but to the extent it is you have the passenger traffic bear all the expense of that car or series of cars that are being used for all the classes of business of the railroad?

A. Yes, sir; it was so small that we did not think it worth while to make an extra division. It is pretty near as small as the dining car mileage in Arkansas.

At this point adjournment was had until Wednesday, June 24, 1914, at 9:30 o'clock in the forenoon.

413 LITTLE ROCK, June 24, 1914.

Met pursuant to adjournment as above on Wednesday, June 24, 1914, at 9:30 A. M.

Present: Parties as before.

The following proceedings were had:

Cross-examination of Mr. T. A. Hamilton resumed.

By Mr. Hill:

Q. Mr. Hamilton, turn to the formula where we were discussing the division between passenger and freight on the gross engine mile?

A. That is maintenance of way, line and terminal. On page 17 it begins.

Q. Those accounts, 2 to 10, on page 17, read "Apportionment of maintenance expense of line and other common tracks as between freight and passenger is to be made on the basis of the engine ton miles based on the weight of engines in working order."

A. Yes, sir.

Q. There seems to be a difference between you and the accountants as to what the engine miles consisted of in one of these other exhibits; I want to know what engine miles you used there, passenger and freight, or what?

A. I did not know there was a difference of opinion between us as to what the engine miles consisted of.

Q. I mean that Mr. Oliver——

A. Oh, yes. You mean when Mr. Oliver undertook to construe Mr. Douglas' thoughts for him in the interpretation of that
414 formula—yes, there was a difference on that.

Q. You had a difference of opinion on that point?

A. Mr. Douglas understood what he put down for his own guidance differently from what Mr. Oliver thought it meant.

Q. What did you include in that?

A. The engines included in the ton miles in making this division of line expense between freight and passenger are the engines that pulled the freight and passenger trains; and, of course, that includes the engines which pulled the mixed trains; and the mixed train engine ton miles were divided between freight and passenger on the basis of the freight and passenger consist of the train; that is, the freight and passenger gross weight of the train.

Q. You used the gross weight proposition on the mixed train?

A. Yes, sir. An engine pulling a mixed train, which consists of a number of freight cars and a passenger coach,—it is a hybrid service. The benefit that the freight gets in that mixed service was the gross weight pulled for the freight service, and the benefit that the passenger gets in that mixed service was the gross weight pulled by the engine for the passenger service.

Q. You took the helper engine mileage and ascribed that to passenger or freight, as the case was?

A. That is, if the helping engine, or "hill" engine, such as is used on Boston Mountain, for instance, was pulling a passenger train, we charged that engine for the journey it made with the passenger

train to passenger service; and if a hill engine, for instance,
415 between Chester and Winslow, were helping a freight train, we charged that engine to that identical train.

Q. What did you do with the switching engine mileage?

A. That does not enter into this division at all. This is a line expense.

The Court: What is that? Item- 2 to 10?

A. The explanation that was given about the mixed train, but that is a general principle applied all the way through.

Mr. Hill: That is referred to all the way through, and there is no question about that?

A. The terminal tracks?

Q. They are shown on page 12.

A. I am speaking of them as a general proposition.

Q. They are set down here on page 12?

A. The terminal tracks on which the switch engines worked, or the terminal portion of the tracks upon which the switch engines worked, were divided between the freight and passenger service—or, rather, their maintenance was divided, on the basis of the time used, as we have explained before, the hours and minutes devoted to freight and passenger service, that being the use the switch engine made of the track. Nobody would attempt to follow the switch engine service and divide it on a freight and passenger mile basis.

416 Q. You divide it on page 12, tracks: A, train tracks consisting of main and passing tracks?

A. Yes, sir.

Q. And those are denominated as line?

A. Yes, sir.

Q. And assigned to freight or passenger according to use?

A. That is correct; that is divided on an engine ton mile basis.

Q. The switch engine does switching on the main track and on the passing track, doesn't it?

A. Yes, sir.

Q. And makes some mileage there?

A. Oh, yes, it would get out on the main line and get on the passing track occasionally. You could not have a yard track that connects with the main track and passing track and not get some use of it occasionally, by going over it. You must connect your yard track with your main line somewhere, or otherwise it would not be of any use to you.

Q. But the use of those tracks by the switch engine and the mileage made on it, is not used as a factor in this division between freight and passenger?

A. As I understand the inquiry in its entirety, it is this: The switch engine gets out on the main line, which we have set aside here as entirely chargeable to line service; or it may get
417 upon the passing tracks, which we have charged entirely to line service. Now you are asking me if it is not a fact that we have charged that use all to the line trains, and let the terminal function of the switch engine escape its burden of the passing track.

Q. I didn't ask you that question.

A. But isn't that the sense of it?

Q. No, sir.

(Previous questions and answers read to the witness.)

A. I thought that was rather a clear statement of the question.

Yes, the switch engine gets on the main line at stations and on the passing tracks at stations.

Q. And the mileage made by each is not used as a factor in this division?

A. Yes, that is correct.

Q. Can you state the percentage assigned to freight and passenger on the time study proportion, as applicable to this item 2 to 10, on page 17 of the formula?

A. No, sir, there is not any.

Q. Is there any of the items 2 to 10 on page 12?

A. Which of those items?

Q. 2 to 10?

A. There are several classes of track there: Which one do you mean?

Q. This switch engine service is the question I am asking about.

418 A. Yes, but under items 2 to 10 you have five classes of track: to which class do you refer?

Q. I am referring to all use made by switch engines of train tracks, consisting of main and passing tracks.

A. You mean item A. Answering as to page 12, the same answer will apply, because that is the primary division of those train tracks between line and terminal, and they are all assigned to line.

Q. "C" on page 12: Is that all assigned to line—the switching service done upon it?

A. The classification tracks and storage tracks are all assigned to line, and necessarily so. Those are the tracks upon which cars are classified in making up and in breaking up trains; and upon which cars are stored as they pass through a terminal, cars which do not originate or terminate there.

We went all over that in detail in discussing your Ft. Smith illustration yesterday. Those are line tracks and used for line purposes.

Q. The particular inquiry now is as to the use of those tracks by the switch engine?

A. If it uses them it uses them in line service and not terminal service. In other words, they would not be in that category.

Q. Your work engine makes mileage?

A. Oh, yes.

Q. Does that enter into your division between freight and passenger on the engine mile basis?

419 A. No, sir, and it should not. The work engine is just as much a track tool, when it is engaged in service, as the section foreman's shovel or pick; and you will find it divided on the same basis as his tools. That is, the direct labor and material charges in track maintenance. It is treated as a tool, just as all the track equipment is.

Q. And divided upon freight and passenger upon the basis of the

direct charges of maintenance of way, as apportioned between freight and passenger: Is that it?

A. No, sir. If you will look at page 18 of the formula: That is, for instance, the line proportion between freight and passenger. You will find it set forth there that the repairs and cost of maintenance of work equipment is divided upon the basis of assigned charges; that means the division previously made; in account- 2 to 17 inclusive; and you will find those accounts 2 to 17 as shown on page 17 of the formula, are direct track maintenance accounts. In other words, we treat work equipment the same as any other tool.

Q. I understand about your equipment, but I am speaking of its effect upon maintenance of way.

A. The use of the track by the work engine or work train is incidental to keeping up that track. It would be just as logical to consider that work engine in the division of the track it helps to keep up, between freight and passenger, as to consider the effect of the section foreman's pick and shovel on the track, in a division between freight and passenger.

Q. I will call your attention to Account 18 on page 17, road tools and supplies, apportioned to freight or passenger upon
420 the basis of revenue train mileage?

A. Yes, sir.

Q. If that was the same as a tool, why wouldn't it be apportioned on the basis of train mileage?

A. If you will look at the modification, you will find the road tools are apportioned on the same basis. The basis is consistent in the division of the two items.

Q. Yes, I see that. Then the mileage on the item of work train does not enter into it so far as maintenance of way is concerned?

A. No, sir, and for this reason: We keep up that track, not to run work equipment up and down it, but to run freight and passenger trains over it. That is the ultimate use of it. The operation of the work train over the track is a mere incident of its maintenance, and we divide the repairs of that work engine as explained here, on the basis of the track maintenance; and it goes into track the same as any other tool.

Q. What do you do with the mileage of the light engine?

A. Light engines in freight and passenger service—and by "light" I mean running without a train, or with a caboose only in freight service, we have charged according to the services in which they were running light.

I might say, as a matter of information, and it is a factor in economical operation, that we run very few light engines on our
421 road. We prefer to put them double headers on the train. That leaves less train units running up and down the road, and makes cheaper operation. I might say that "light" engines on the Frisco Railroad in this state may be considered as a negligible quantity.

Q. I find from the working sheets that Mr. Oliver had, it is something like 2%.

A. I think 2% is negligible.

Q. How have you divided that? Have you found whether the

engine was running light passenger or light freight, and added that to the passenger or to the freight mileage?

A. We have added the engine ton miles, freight and passenger service of the light engines, just as you have suggested in your question. That is, we have charged the light engine to the service it was going to perform, or returning after having performed.

Q. And you added that into the mileage made by the engine carrying a passenger train or a freight train as the case may be?

A. Yes, sir, according to the service in which the light engine was running. That is the direct proposition you are talking about.

Q. Yesterday you wanted to look up the question of the extra mileage made by the locomotive on local trains for switching at stations: Have you that answer ready?

A. Extra mileage?

Q. Yes.

A. I do not recall promising to get you that.

422 Q. I recall asking you if you had considered the extra mileage made by the local train in doing switching at stations.

A. In what connection, Judge Hill?

A. In the division of freight and passenger between local and through trains.

A. That is the division of expense between local and through trains?

Q. Yes.

A. No, sir, we did not make our division that way. That was the formula used in the Iron Mountain Case.

Q. Yes, I understand; and I asked you if that element was considered in this formula?

A. Yes, sir, it is.

Q. In what way?

A. I think it was very thoroughly considered. It goes back to the basis of the formula we have set up here. It will take some time, but if you want the information I will be glad to go over it.

Q. Yes, I want the information.

A. You are speaking of transportation expenses through and local train cost. We have divided those expenses between line and terminal, and freight and passengers. That has been gone over in some detail. In dividing the freight between line and terminal, and speaking of the road trains, to which your inquiry is directed, we found out how much time they put in at these local stations as contrasted with the entire time they were running upon the railroad; and we divided the expense on a time basis. If they switched

423 an hour at a station they got charged with that hour; and such a charge takes the place of the state's former arbitrary assumption of extra mileage made in switching. Now the relation between those two is—well, I don't know that I can make it any clearer.

Q. You think in that way you have taken care of the well known factor that the local train makes more mileage than the through for the same run, on account of doing switching at stations where switch engines are not kept?

A. Yes, sir, I think we have apportioned the use of local train and

its engine upon the basis of the time it devoted to line and terminal service.

Q. When you come to a division between freight and passenger, made up on the engine miles run, plus the weight of the engine, have you cared for this element in that?

A. We think so.

Q. In what way?

A. We have, as you have stated, made the division upon the basis of the engine ton miles of the freight and passenger trains; and we have, as we believe, in that way charged the freight and passenger trains with the use which they made of the track in running trains over it.

Q. To illustrate my point, suppose the run of a local train is 100 miles at a given date: Owing to the service it performs in this respect it really runs 150 miles: You have made your apportionment between freight and passenger using the 100 miles which it was supposed to run instead of the 150 miles which it actually ran—if I understand your exhibit correctly?

424 A. Yes, sir, and very properly so. The question overlooks the fact that what is divided on the engine ton mile basis is the line expense, the terminal proportion which your 50 miles represents has already been split off.

Q. In what place?

A. On the time basis as between terminal and line service.

Q. That is the only place where it has been taken care of in your time study?

A. Yes, sir, and the only place it needs to be taken care of. That has nothing to do with the service which is reflected by the state's assumption of 50 miles switching service average. We have set aside the actual time represented by that 50 miles. Now we come to a division between what is left, the train running between stations, and that is where the engine ton mile comes in.

Q. Turn to 31-*a*: This is a modification of the apportionment of terminal passenger between intrastate and interstate. This is the point I was looking for yesterday afternoon, where the trans-state was excluded. As far as I know this is the only place in the exhibit where it is excluded; isn't that correct?

A. That is correct.

Q. In all other references to interstate passengers, you are including the trans-state passengers?

A. In all other references to the interstate passenger we have included the trans-state. And if I may I would like to explain why it was excluded here.

425 Q. All right.

A. The division which is proposed here with the trans-state passenger excluded, is the maintenance of buildings, fixtures, etc.—station property. And as is stated in this modification, the trans-state passengers were eliminated from consideration for the reason that the trans-state passenger makes no use of depot buildings within the state, or if any use of such buildings or stations is made by the trans-state passenger, it is not essential to his journey through the

state. He may get off the train and walk up and down the platform, or go in the station and get a drink of water, or ask a question of the agent. We kept that out. Elsewhere we have charged the trans-state passenger the same as we charge the interstate passenger, with the actual service he got.

Q. Look at the formula on page 15, item 94.

A. That is the item telegraph and telephone operation.

Q. Then on page 12, item 14, in that connection, under maintenance of way division between line and terminal, the item of telegraph and telephone, line, common, are apportioned half and half between line and terminal. The same item under apportionment of expense between line and terminal, page 15, item 94, it was apportioned on the basis of operating accounts 1 to 105 inclusive?

A. Yes, sir.

Q. Why did you change that basis?

Mr. Moore: I will call your attention to the fact that one of those is transportation expense and the other is maintenance of way and structures.

426 Mr. Hill: I know that. I think that is included in my question.

A. The first division about which you inquire is the division of the expense of maintaining telegraph and telephone lines. They are used for the various purposes of the railroad, and their use is so interwoven that it is an absolute impossibility, without analyzing every telegraph message, and taking a record of every telephone conversation, to apportion them upon any actual basis. We felt that the telephone and telegraph lines were there to be used in common between line and terminal service, for whatever use might be needed of them. We divided them half and half—that is, the maintenance.

On page 15, item 94, we have the operation of the telegraph and telephone lines, and we have divided those between line and terminal on the basis of all operating expenses; because having gotten the line use and the terminal use set up by this first arbitrary division, which must necessarily be arbitrary, we then said the charge for operating these lines—which represents telegraph operators at stations, pure and simple, might fairly be chargeable on the basis of all the other expenses of the railroad for operating its property.

It is another over-head expense spread over all, on the basis of the other expenses.

Q. In the first place, it is an arbitrary division?

A. It could be nothing else.

Q. And, secondly, you use the overhead basis——

A. Because it was a nearer factor to the actual fact.

427 Q. Look now at page 17, account 14: That is modified, I presume?

A. Not by us.

Q. No, that follows the original there?

A. Yes, sir, the original text is followed by us.

Q. You use the basis there of revenue train miles for the common expenses?

A. That is a line expense, yes, and the line expense means the moving of the train over the railroad; and that is the telegraphing incident to the contents of those trains—not the dispatching of the train, but the moving of the contents.

Q. That would be divided on the basis of passenger train miles on the one side and freight train miles on the other?

A. Yes, sir.

Q. You do not use passenger and freight engine gross ton miles?

A. No, sir, we do not telegraph trains, but run them on the track.

Q. The engine does not represent the train in this instance like it does in the other, then?

A. No, sir, not at all.

428 Q. Return to your "Hire of equipment" account, Mr. Hamilton, and let me see.

A. What period, Judge Hill?

Q. What is that?

A. What period, or do you mean the formula?

Q. The formula.

A. If you mean the formula, it is in the front part of it, along about page 7, I think. (Examining formula.) Yes, you will find it down there towards the bottom of page 7.

Q. This is hire that you pay for the special equipment that we discussed yesterday afternoon and included in that——

Mr. Moore:

Q. What item is that on page 7?

A. The third last paragraph, Mr. Moore.

Mr. Hill (to Mr. Moore): The income account.

The Witness: Pardon me, Judge Hill; I did not get your question.

Q. This hire that you pay for special equipment like tank cars, refrigerator cars, and stock cars, is included in this "Hire of equipment?"

A. Yes, that is where we are required by the Interstate Commerce Commission to charge it. It belongs there.

Q. I believe you stated yesterday that that is practically all interstate movement?

A. That special equipment, with the exception of the stock cars, would be apt to be practically all long haul and, of course, long haul with us in Arkansas means interstate.

Q. Whatever is not interstate in that item would be neg-
429 ligible, to use our favorite term?

A. Yes, sir, in so far as Arkansas is concerned.

Q. Take page 20 of the formula, item 93: "Clearing wrecks" is the item I am looking for.

A. That is the first item on page 20.

Q. That is an apportionment between freight and passenger?

A. Of line expense.

Q. Of line expense, and on page 26, item 93, the apportionment

between freight and passenger, state and interstate—I suppose it is the same number?

A. Yes, sir.

Q. In the last account that is on the basis of a passenger mile between state and interstate?

A. Well that is the state and interstate division, but underlying that and as part of the provision on page 26, you first have to set aside the passenger carrying proportion of that expense on the car foot mile basis.

Q. Car foot miles is the basis?

A. Yes, sir.

Q. In "Maintenance of way" at page 17, accounts 2 to 10, where the injury to the track would occur growing out of it, it is divided on the gross engine tons between freight and passenger?

A. Yes, sir, but one of these items is a transportation expense and the other a maintenance expense. The clearing of the wreck means the picking up of the debris, etc., and clearing the main line or the yard track, and that is a transportation expense. You will not that on page 20, item 93, we charge that to the service which is responsible for the wreck, freight or passenger, and if we cannot de-
430 mine whether the responsibility rests with the freight or passenger train we divide that on the basis of what we could determine. It came over here to this maintenance item (2 to 10) and included in that is any cost of repairing the track that may have been necessitated by the wreck——

Q. That would put the cost of——

A. Pardon me, I wanted to finish.

Q. All right, go ahead.

A. (Continuing:) And that would put the cost of any specific wreck into the pool and divide it between freight and passenger on this engine ton mile basis. That is an incident to keeping up the line track.

Q. It is a well known fact, I presume, that freight trains cause more wrecks than passenger trains, is it not?

A. Oh, yes.

Q. Do you know about the relation of freight train wrecks and passenger train wrecks?

A. Not without getting some data on it. I haven't it here, Judge Hill.

Q. You have been having some statistics of that in Oklahoma, have you not?

A. Sir?

Q. Some train wrecks in Oklahoma?

A. Yes, sir. I had a map furnished me by the Oklahoma Commission, which was found to be somewhat twisted when I got to checking it.

Q. Do you know about the relation of the passenger and the freight wrecks?

431 A. I don't recall now, Judge Hill. But think your assumption that the major portion of wrecks are due or chargeable to the freight service is a correct one. There is no question about it.

Q. There is no question about it, but if you have any data to give us as to the relation between them I would like to have it. I don't know whether it is a matter subject to data or not. I think I saw a map of your road in Oklahoma——

A. Yes, sir, I checked that map and am very familiar with it.

Q. —and checked up some of the wrecks, and I think it showed passenger and freight.

A. Yes, sir. I am very much interested in that map——

Q. I am not interested in the map, but in getting the relation between the passenger and freight wrecks.

A. I found a lot of things, where we had one pair of wheels on the ground, charged up as a wreck. Mr. McKay, the Secretary of the Commission, was kind enough to give me his table and I ran it down, but I haven't any data here, Judge Hill, that would tell about the proportion of wrecks in Arkansas, but you are safe in your assumption that the major portion of them are freight wrecks; by far the major proportion.

Q. When a freight wreck occurs and trains are delayed thereby, isn't there an attendant expense on the passenger service, extra wages and transfers?

A. Growing out of the wreck?

432 Q. Yes.

A. Oh, yes.

Q. That would necessarily follow.

A. And at that very time that passenger train might be carrying a half dozen members of a freight crew dead-headed over the railroad, and bearing some expense of that. At the same time the freight train might have in it a car of coal for the passenger train, and that would be mixed up in it.

This formula does not attempt to split hairs or get down to actualities on things that no human being can divide, but it does attempt to get as close as it can to the actual facts, and is an honest and consistent effort in that direction.

Q. This division between the local and through freight trains would also ignore whether the wreck was occasioned by the local or the through, and the attendant expense of that is not apportioned on the load of the local and through; it is just thrown on the freight side of it without any differentiation between whether the wreck is caused by the local or through?

A. Which item are you speaking of, the track maintenance?

Q. That would be line expense—it will run into all of them—line expense, between local and through trains.

A. But you mean now the maintenance of way expense, repairing the track after the wreck, or picking up the wreck?

Q. Yes.

A. If you come down to the division between local and through trains it was divided, as explained, on the gross ton mile

433 basis. We counted every freight train a freight train.

Q. You made no distinction in that?

A. Oh, no; it was an incident of the freight service.

Q. There is a question I believe I asked you yesterday, but I am

not certain, and that is if it was not considered that there was extra maintenance required on account of passenger, by reason of carrying the Pullmans, their weight?

A. You did not ask it yesterday, Judge Hill.

Q. I intended to.

A. I don't recall it.

Q. The Pullman cars are much heavier cars than the ordinary day coach?

A. No, not any more; they used to be.

Q. It was in 1907, wasn't it?

A. Possibly; it certainly is not today. Take our main line trains running through this state, our Kansas City-Florida service, and that is a solid steel train, and some of those chair cars would weigh within a few pounds of the Pullman—and some of the postal cars.

Q. If my memory serves me right, all of those that are on your line were put on in the last four or five years, isn't that correct?

A. That is about correct; since about 1908, or along in there. I would have to look it up to be sure, but nowadays the Pullman is not always the heaviest car in the train.

Q. You have some pretty good cars over there now, but they are recent?

A. Yes, four or five years back.

434 Q. They were not there, according to my memory of it, in our period of inquiry in 1907——

A. I would have to look that up, but I think you are correct.

Q. In that connection, I noted a question here for information, which I suppose you can give: Who pays for the ice that is used on the Pullman, the railroad or the Pullman Company, under the contract?

A. That is, supplying the cars with water and ice?

Q. Yes.

A. My recollection is that we supply that; it is a part of our train supplies and expenses.

Q. I think that varies in contracts on the different roads, does it not?

A. Yes, sir. That is my recollection of our contract. I think we ice the cars and make no attempt to charge it.

Q. I wish you would look that up; I presume your contract will show that.

A. Yes, sir, if it is mentioned at all. I think it is just a matter of common usage that we furnish the ice without any reference to it in the contract.

Q. The load of the Pullman is not, as a general thing, more than one-half that of the day coach, is it?

A. I don't mean in weight, I mean in passengers.

A. No, sir, it won't accommodate as many passengers, there is not the room in the car for them. I would say that that is a fair assumption. If we had the Pullman car full to its capacity we would not have much more than half a day coach.

435 Q. Compared with a full day coach there would probably be less than one-half in the Pullman, would there not?

A. About that proportion, yes, sir.

Something has been said about the expense of clearing wrecks on the Frisco Railroad, and I think I should state, as a matter of simple justice, that in this state, in our test period, that expense was $1,761.

Q. What expense is that?

A. Clearing wrecks. It shows in the exhibit here.

The Court:

Q. $1,761 for what?

A. For clearing the wrecks, picking up the wrecks that Judge Hill has been talking about.

The only reason I mention that is that I did not want to get the impression, or even the inference into the record here, that we are having a lot of wrecks in this state; the amount is small.

Q. For the entire state?

A. The state of Arkansas.

Mr. Hill:

Q. For what period?

A. Our test period, for two months.

Q. You don't know what it was in the four months of 1907?

A. I have the figures here, but not in the courtroom. I can get them for you.

Q. That does not include the expense of repairing the track where the wreck has occurred?

A. No, sir, we don't attempt to keep that separate; we are not required to do so anywhere except by the Oklahoma Corporation Commission.

436 Q. I want to ask about this item on page 7, for information: I don't know about it. "Joint facilities Revenue—Dr." and "Joint Facilities Revenue—Cr." items 20 and 21.

A. Yes, I have it.

Q. I understand your division on this is between state and interstate?

Mr. Moore (to Judge Hill:) What page is that?

Mr. Hill: Under 20 and 21, debit and credit, at the bottom of the page. I don't understand the method and I just want an explanation of it, so we can look into it.

A. If you will look at page 2, of Exhibit No. 27, you will find a credit there for joint facilities rent income. I take it that is the item you have in mind.

Q. No, I haven't any specific item in mind. I want to know how you handle that general proposition.

A. I mean, that is the character of the item you have in mind.

Q. This says "Rental Credit" here.

A. No, sir; it says "Joint Facilities Rent Income." This is the exact language of the formula under the Interstate Commerce classification.

Q. That is right.

A. The charge which we have to pay for the use of the facilities of another carrier is made up of two parts, one, our pro rata share, usually upon a wheelage basis, of the operating expenses. That is the actual expense incurred during each period we bear out share of.

The other item is the rental which we pay to the landlord
437 or owner of the property, as a tenant. Usually that is 2½ or 2% upon the agreed value of the property which is used.

That is what you find here as "Joint facilities rent income." That is the nature of the item. I don't believe we have any joint facilities rent deductions, but if we have in these other exhibits, the converse of this proposition is true.

The division which the formula provides is to locate to the state—in our case these facilities don't run across state lines; they are all in the state, so that problem is removed—then the division between freight and passenger, intrastate and interstate, on the basis of assignment of operating debit and credit, and so on each facility.

I explained that part of our payment for the use of facilities was a sharing in the operating expenses. Those are arrived at by division on freight or passenger units of use, so the division of expense between freight and passenger has been used to divide the other portion of it, which is the rental.

Q. You say the unit of use was——

A. If we used a passenger station it would probably be the number of cars in and out of the station. If we used a piece of track to run across there——

Q. What are your joint facilities here that this comes from?

A. Well, I would have to stop and think where those tracks are.

Q. The major part of them, I do not care about running into the details.

438 A. I want to take one special instance, if I can think of one. We do not have many of them and it is pretty hard.

Take this, for instance, one that will be close to home for you; take the old passenger station at Fort Smith: We rent that now to the Midland Valley, and some trackage in front of it. My understanding is that we charge the Midland Valley a rental for that passenger station; I think it is $100.00 a month.

Q. I don't think your Company is using it at all as a station now.

A. No, sir, but it is the income we get from it, the rent the Midland Valley pays.

Q. Whether it is joint facility or not, it is an income that you receive on your property, is that the idea?

A. It is an income from the joint use of our tracks. As a matter of fact, we do use that building jointly, the superintendent's office is upstairs.

Q. It is used for the offices and the——

A. And they use our main line track.

Q. At any rate, that is the joint facility in the meaning of this account?

A. Yes, sir. We charge them a rental for that, and, in accordance with Interstate Commerce classification, that rental is credited here. On the other hand, we charge them for the maintenance of

that building, for the maintenance of that track they use in front of it (that is our main line there) and we pro rate that, I think
439 on a basis—but it will serve the purpose to say, on the number of cars taken to and from that station.

Q. That is, the Midland Valley cars, not your cars?

A. Yes, sir, we make a pro rate there; I don't know the basis.

Q. During your period here that you made your test, November and December, 1913, you were using the new union station at Fort Smith?

A. Yes, sir.

Q. That is on the Kansas City Southern, and you are paying a rental?

A. We are the tenants there.

Q. It is just the reverse of the other proposition?

A. Yes, sir.

Q. How do you handle the amount that you pay out to the Kansas City Southern?

A. That does not show in Exhibit No. 27, because then we were not on the Kansas City——

Q. I understand, but take that as an illustration, I don't care about the figures, but I want to know your system.

A. We handle it exactly the same way. We have divided it, as the formula says, on the basis of the use made of the facility; that is, it is all passenger and we have charged it all to passenger.

Q. How do you divide that between state and interstate after you pay it out? Take this rent that you pay to the Kansas City Southern for the station at Fort Smith: How do you divide that between state and interstate?

A. I must confess that my memory is not clear on that right now. I will have to look it up, and I will be glad to answer your
440 question as soon as I can get the rest of the information during the day. I have a clear record of it, but I have forgotten just how that particular item was treated. We treated those things separately, and I will have to look into it.

Q. All right. In using your test months, November and December, 1913, you applied them back to 1907: Did you take into consideration such a change as that? You are paying considerable rental there now for that depot at Fort Smith and in 1907, you were probably receiving rental from other carriers. There is quite a change in the debit and credit side of your account on that, I suppose?

A. Oh, yes, sir.

Q. Did you take that into consideration and eliminate your rental to the Kansas City Southern in applying your percentages back to 1907?

A. That does not come into the percentages in any way, shape or form.

Q. It would if you come to the relation between state and interstate?

A. Oh, no.

Q. You have to divide it out between state and interstate somewhere?

A. Yes, but that stops with the operating expenses, Judge Hill. That is a rental.

Q. But it has to be divided between state and interstate just like operating expenses have to be divided in some way?

A. I know, but that does not come into the extra cost percentage in any way at all. I would like to clear that up, if I may.

441 The rental for each period is divided on its own bottom as a separate proposition. What we did was to get the extra cost for the 116 Interstate Commerce expense accounts and carry back that percentage of extra cost. In each year we treated the rental in accordance with the facts in that year, whatever they were, but we did not tie any excess cost to rental——

Q. I did not say you carried excess cost, but you work out a proportion here of so much excess cost to intrastate passenger and so much excess cost to intrastate freight: I don't see how that can be worked out unless you have run each income account down, state and interstate.

A. No, sir. That is the excess cost of the operating expenses of the Interstate Commerce classification of 116 accounts. You are confusing an income charge and credit with an operating expense.

Q. In making your 15% extra cost on passenger and your 316 extra on freight, you do not take your income account into consideration at all?

A. No, sir, and you could not get any accountant who knew his business to do it.

Q. In your test period of 1913, the two months' period, did you carry in operating expenses any portion of the costs of this litigation?

A. I would like to ask Mr. Press, who made those figures under my direction.

Q. All right.

Mr. Press: No, sir.

The Witness: No, sir, none of it was included. That

442 was my recollection. We purposely kept it out of our law expenses in this division.

Q. And that did not enter into account 109——

A. Law expenses.

Q. Isn't it 109-A, down here?

A. I don't know what it is, it is about that. It is in that category. Look at page 20, you will find "Law expenses" item 109.

Q. That is your ordinary law expenses?

A. Yes, sir.

Q. Here is 113½ "Valuation expenses," apportion freight and passenger on basis of assigned charges in accounts 1 to 105: That is on valuation expenses?

A. Yes, sir.

Q. What does that "valuation expenses" refer to?

A. The Federal valuation which we have been required to make.

Q. Under the Federal law, not what you get under this——

A. Sir?

Q. Not any valuation expense that you are making in these cases?

A. No, sir. We were very careful to exclude in that test period the heavy burden of expenses it has taken to prepare this case; that has been thrown out.

Q. You carry these expenses into your accounts, do you not——.

A. Oh, yes, sir.

Q. —for the monthly period?

A. Yes, sir.

Q. In what item would that be entered into your account, on 109?

443 A. That is the expenses which were incurred under my direction. The clerical work and the gathering of this data, all but the valuation, we would charge to 109. The work was done for our Law Department. I am not clear, but I believe that the special valuation made in this case would also go in there, because, as I understand it, the Interstate Commerce Commission injected this new account—"Valuation Expenses"—in here so that they could determine the cost of this Federal valuation that has been made. I think that has been kept separately, but I do not know that no part of the valuation expenses incident to preparing those exhibits, or the other expense incident to that, is included in this test period.

Q. On your Interstate Commerce reports you have to show this, don't you?

A. Oh, yes, we have to charge it up, and in our reports to the State Commission we will have to show it.

Q. You do show it?

A. We will when the time comes to make the report at the end of this year.

Q. But you deducted that when making up these exhibits?

A. Because it is an abnormal proposition. We felt we had no right to ask for that extra, because it would not happen under ordinary conditions, and we took it out.

Q. For once in my life I agree with you thoroughly.

A. We have tried to be fair, exactly fair, and that is an instance of it.

Q. As I understand it, your Company freight is assigned to Arkansas on a mileage pro rate, I believe it is, isn't it? What

444 is the prorate, without turning to the exhibits, you can state it from memory.

A. If you mean, Judge Hill, the company ton miles——

Q. I mean your handling of your company freight.

A. That is a big proposition.

Q. Yes, I know it is.

A. You cannot dismiss it as summarily as that and get the facts out of it.

Q. What is your basis of assigning expenses of company freight, as a general proposition, without running into the details of the different accounts, between Arkansas and the balance of the states?

A. Between Arkansas and the balance of the states?

Q. The balance of the system.

A. Both as to passenger miles and ton miles of non-revenue traffic—that is, company material——

Q. You segregate the passenger and freight——

A. Oh, yes, sir.

Q. And then divide the passenger on the passenger mile and the freight on the ton mile?

A. No, sir.

Q. How do you do it?

A. I was just coming to that. We treat non-revenue traffic, both passenger and freight, just as we do revenue traffic, in that respect. The non-revenue passenger has a pass the same as the revenue passenger has a ticket. We had a record of him and if he made a mile in Arkansas we charged that mile just as we locate our regular revenue passenger mile. The same was done with the company material, with the exception of that which was—oh, some small
445 supplies carried on wreckers, and things of that kind—it is all way-billed, and we made our company ton miles from way-bills and located them actually to Arkansas, just as we do our revenue ton miles. That is how we get the company ton mileage and passenger mileage into Arkansas.

Q. That would assume an equality throughout the system, would it not?

A. Oh, no; absolutely not.

Q. I did not follow you, then.

A. We treat each company material way-bill upon its own bottom.

Q. That is, through the entire system?

A. Oh, no.

Q. Do you segregate it to Arkansas, each one of them?

A. We only put into Arkansas the actual company material tons one mile, which move over our rails in Arkansas. That is all, sir.

Q. Then you do not have a system of mileage pro rating of that item?

A. No, sir, that is done actually, just like the revenue traffic, on the ton miles and passenger miles.

Q. How do you divide those tons between state and interstate?

A. That is quite a story. That is set out in detail in Exhibit No. 10. It is pretty voluminous, Judge Hill. Do you want me to go into it and explain it?

Q. I don't care to go into the details, I just want your general plan.

A. I cannot abbreviate it very much, but I will try.

Q. All right.

A. On page 37 of Exhibit No. 1, there is a single statement of the method that was to be followed. I find that is modified a
446 little. It is modified because the original print had some typographical errors in it, and not because we deviated from the principle, or took exception to it.

I don't know any better way to answer it than what the formula says and Exhibit No. 10, without being tiresome, perhaps.

Q. You can just read that into the record in this connection if you think it answers the question as fully as you care to answer it.

A. I will answer it in this way, then, if I may: The formula, on page 37——

Mr. Moore:

Q. Why won't it do just as well to refer to the pages of the formula?

A. I was going to do that. The formula, on page 37 and 37-A, of Exhibit 1, taken with the detail explanation shown in Exhibit No. 10, explains fully the method of apportioning company material or non-revenue service costs.

The effect of the apportionment is shown in detail, by accounts, in Exhibit No. 11.

The general theory was that each class of revenue service, freight and passenger, performed some non-revenue service for itself, and for the other class of revenue service, freight and passenger; and that that burden should be, so far as we could do it, equitably spread. I can give a concrete illustration of that. The attempt was to
447 charge the passenger service with the coal hauled for it by the freight service, and, on the other hand, to charge the freight service with the freight employes who were carried free on passenger trains. That was the end we were working toward, and the formula and these two exhibits explain it.

Q. After completing your expense accounts, then, you go to a division of property and, broadly speaking, use expenses as the basis to divide your property between state and interstate, do you not?

A. Yes, sir.

Q. On what theory do you do that?

A. Judge Hill, I took the Iron Mountain record as a text book, and Mr. Ludlam and Mr. Wharton both stated emphatically that that was their idea of a good basis of division. I will say that I propounded that to the Committee who got up this formula. That was our text, and I think that it may be justified of itself in this way: As I have stated, we divide the value of the property on the basis of the division of operating expenses, not in a lump, but as Exhibit No. 18 shows, each class of property separately.

The reason for that is this: That we have assumed here and think we have succeeded in dividing our expenses on the basis of the use made of the property. If that is true, then the results of our division of the expenses reflect the use, and we have used those results to divide the property on the use basis in accordance with what we understood to be the Minnesota decision.

448 Take Exhibit No. 18 as a text: We divided the property there, the roadway and structures—it is all set forth in the exhibit, but I will state it briefly—on the basis of the assignment of transportation expenses. That reflects the money spent in using, in a large measure, the roadway and structures in running trains over it and hauling traffic.

So we felt that the transportation expense division, which we think has been made upon the basis of the use made of the property, might fairly be used to divide the roadway and structures value.

Then, as to locomotive equipment——

Q. Wait a moment. You mean that you are dividing roadway

and structures upon the transportation items and not upon the other maintenance of way and maintenance of equipment?

A. That is correct, sir.

Q. I had forgotten that detail.

A. Now, as to the locomotive value which we assign to the state: We divided that upon the basis of locomotive repair expenses, which we felt had been d[illegible]hrough these various steps and ultimately, between state and interstate, freight and passenger, on the basis of the use made of the locomotives.

We followed the same plan for passenger cars and freight cars. I think there was one exception there where we could assign direct, and that was some mail cranes, masts and arms, for taking
449 mail onto a moving train, and we charged those direct to the mail. That is the theory on which that was handled.

Q. The big item is the roadway?

A. Yes, sir.

Q. You use the transportation expenses alone to divide that?

A. Yes, sir.

The Court:

Q. When you say "the use of the property" do you take into consideration merely the weight and amount carried, or do you take into consideration the classification and the revenue derived——

A. No, sir, we don't in any sense consider the revenue, but by "the use made of the property" I meant the aggregate of all these divisions, the station time study, the yard time study, the analysis of the trains' contents, etc. When we get that boiled down we have treated here with each separate item of expense according to the use of the property which incurred that expense, and [illegible]at is the use that I refer to in this property [illegible]ion. It is the sum of all those.

Mr. Hill:

Q. You take the expenses of maintaining the way: You do not use any part of that as a factor to divide the way itself, between state and interstate?

A. No, sir, because while undoubtedly that would have been reflective, and closely so, of the use, you don't use that track for the purpose of incurring maintenance of way expense; you use it to run trains over and that is what causes your transportation expenses. That is the real use you get out of that track.

450 Q. You have taken the transportation as reflective of the use, and taken the expenses of conducting transportation as reflective of the transportation itself?

A. We have divided those expenses in minute detail, as these exhibits and the cross-examination show, on the basis of the use that enters into each function of our transportation work, and the concrete result, we think, reflects the use of the roadway and structures.

Q. Then the transportation use of the roadway you consider the use for valuation purposes within the meaning of the Minnesota Case: Is that your idea?

A. We have so construed it, not to interpret the Minnesota Case, except that the Court said to divide it on the basis of use. It did not

tell us any more than that, and that, in our judgment, is the nearest reflection of the use, and for this reason——

Q. Why is expense of transportation any more reflective of use than the transportation itself, ton miles and passenger miles?

A. Where else can you meet on a common ground, between passenger and freight? Each passenger does not weigh a ton, and you cannot compare him with a ton mile, when he——

Q. They meet on the common ground of the engines, of each engine. That is the way I understood you yesterday?

A. No, sir.

Q. I thought you resolved the common ground on the locomotive, as I understood you?

A. No, sir, because that is straight line, line expense. The
451 engine ton mile has never touched the terminal expense, and the terminal property is all in here. You have to take all the divisions.

Q. Your time study and other things worked out a factor to your satisfaction to touch the terminal?

A. I don't understand that.

Q. Have you not taken all these various factors that you have used here, the time study of the cars in and out of terminals, and things of that kind, to reflect your terminal use?

A. Yes, sir, but you are suggesting that we ought to use the engine ton mile for the whole thing.

Q. No, that would not be my suggestion; don't ascribe that to me.

A. I am glad you don't feel that way about it.

Q. You said reflective of the common ground: I called your attention yesterday to the fact that the engine ton mile was reflective of the common ground for dividing the line?

A. Yes, sir, and I still think so, in dividing the line, but here you have a number of other things—the terminal use, which is a big factor, and the engine ton mile does not measure that, but the use made of it in transportation does, and that is why we have used that basis of division. The engine ton mile only goes to the line expense between stations and not to any terminal. That is the very reason we used the conglomerate unit of transportation expenses, because it reaches every current of the railroad's activity. We are in business for the purpose of transporting freight and passengers, and that is the use we get out of our track.

452 Q. Where is your "stopping and starting," Mr. Hamilton?

A. In Exhibit No. —.

Q. No, I mean in the formula.

Mr. Moore (to Mr. Hill): It is on pages 13 and 14.

The Witness: Mr. Moore, I think you are thinking of the division of car repairs between line and terminal.

Mr. Hill:

Q. I am talking about stopping and starting terminal expenses, our old friends.

A. It is under the transportation division.

Q. I think probably your explanation is in one of the exhibits. #2-A covers it.

A. No. 2 will give you a line on it—no, that refers to the time study on station service, that is the station agent who made a time study.

Q. Give me your exhibit number where you have it set forth in percentages.

A. That is page 6, I think, but the description of it is in No. 2.

Q. Exhibit No. 2?

A. The description of it is in Exhibit No. 2, yes. If you will look at page 6 of your Exhibit No. 2, Judge Hill, you will find it.

Q. Mr. Hamilton, just state briefly, without reading it to the Court, how this is handled.

A. We had the conductors in charge of our freight trains and passenger trains during this test period, make a report of their time in line and terminal service, which is described on page 6, of Exhibit No. 2, and also in Exhibit No. 2-H, and on
453 the back of that exhibit. The object was to find out how much time each train, on each trip, at each station, devoted to the line and terminal service, and the conductor was required to segregate the time in accordance with this report (Exhibit No. 2-H) in that way.

Does that answer it?

Q. I am talking about starting and stopping, how much to switching and how much to terminal service; those percentages you worked out by sending out inquiries to your master mechanics.

A. You are talking about the car repairs?

Q. I am talking about this injury from starting and stopping, that we have spoken of.

A. You are confusing something there.

Q. You know what I am referring to. You sent out to your general managers, master mechanics, or somebody and got them to give their opinions as to how much the percentage should be.

Mr. Moore: That is what I referred to, the division of that.

A. The passenger train car repairs on page 13, item 31.

Mr. Hill:

Q. Yes, that covers it.

A. I beg your pardon; I was thinking of one thing and you of another.

That is division of repairs of passenger train cars, between line and terminal service.

454 You recall that in the other case we had a formula that Mr. Wellington had set up, which we used, and we thought we would take a present day opinion of mechanical officers as to what the proportions of terminal damage and line damage to cars were; that is to say, what portion of the expense of car repairs, that is, passenger car repairs, was terminal or line owing to the cause of those repairs. So we had the Chairman, and—I notice the formula says General Managers Association; that is wrong—the Chairman of the Association of Western Railways, at Chicago, Mr.

Tinsman, former chief operating officer of the Rock Island, send out a statement of what this formula construed to be line and terminal services and asked each of the roads in this Western Association (which comprises all the lines west of the Mississippi River) to have their chief mechanical officers analyze the situation on their respective lines, draw upon their experience in that line, and give the Association their judgment. The result of that judgment is reflected here.

Mr. Rosing, who was a witness in the Iron Mountain Case and is now our mechanical engineer on the Frisco, responded to that inquiry on behalf of our line. He is familiar with it and will be here presently and can tell you more about it in detail than I can. But that is the procedure we went through to get these figures. It is the concrete opinion of some sixty men.

Q. On the passenger side of it, on page 16, it says—
455 I will read round figures—65% line and 35% terminal.

A. Yes, sir.

Q. Where is the freight?

A. At the top of the next page, 36% and 64%.

Q. On the freight side of it, it was 36% line and 64% terminal, disregarding the fractions?

A. Yes, that is correct.

Q. The Wellington formula that was used before, to which you have referred, was taken from a standard text book upon this subject, was it not, and based upon tests made upon the Pennsylvania Railroad?

A. In 1887.

Q. And continued in the editions and taught in the colleges down to the present time?

A. I am sorry to say, Judge Hill, that the last edition omits it. He does not publish that table now. It is not in his books, it has become obsolete.

Q. The railroads attacked that because it was in the link and pin day and antiquated?

A. That is correct, sir.

Q. And we found that Mr. Berry, the chief engineer of the Rock Island Railroad at that time, had prepared a table made upon a series of tests on the Union Pacific, I think it was?

A. Yes, sir.

Q. That was substantially the same as the Wellington table but brought down to the present time, or very near to the present time; I think 1902, or 1903, somewhere along in there?

A. Yes, sir. I don't suppose you want me to tell you what Mr. Berry said?

456 Q. No, Mr. Berry can tell about that himself. In lieu of those tables based on those tests, you have got the opinions, or, rather, the average of opinions, as I understand it: Is that correct?

A. Yes, sir.

Q. Of these various master mechanics?

A. Oh, no; not master mechanics, the chief mechanical officers of the railroad.

Q. The chief mechanical officers of the railroad?

A. Yes, sir, from the vice-president on down.

Q. How broad a sweep have you, how big is this Association?

A. It covers everything west of the Mississippi River.

Q. From the Mississippi River to the Pacific Ocean they have had a guess and you have averaged up those guesses?

A. Mr. Rosing can tell you more about that than I can.

Q. I just want the general proposition.

A. That is the general proposition: The opinions of those gentlemen have entered into the making of this concrete percentage. But you have drawn an analogy between this and Mr. Wellington's table, and in reality there is none, because what we mean by "line" and "terminal" here is not what Mr. Wellington meant by "line" and "terminal," and his table so shows it.

Q. Mr. Berry did not mean it, either?

A. He says not. I talked to him about it the other day. He will be here to talk about it himself.

The Court:

Q. Was there not quite a difference of opinion as to what
457 the effect of the new safety appliances which the railroads are required to use——

Mr. Hill: That is just what I stated: Wellington's contention was the old one and Berry's was after the adoption of those, and they are practically the same——

The Court: Some claim the safety appliances reduce the damage——

Mr. Hill: And others claim it increases it.

The Witness: If I may, I would like to elucidate that proposition a little further. I happen to have contrasted the two methods: Mr. Wellington's table was made up of items (as the record in the other case will show) of making up and breaking up trains. It was made up of an item called "terminal handling," as I recall it; an item of "stopping and starting," and then the fourth item, which was called "straight road running."

In the exhibits in the Iron Mountain Case, the state said that the "making up and breaking up of trains"—Take that one—was terminal. Here it is line, because it is preparing the train to run over the railroad.

That draws one parallel and the balance can be drawn out on comparison. So Mr. Wellington's table is not the line and terminal division that is made here, by any means.

The Court:

Q. What percentage did you adopt?

A. We have used a percentage for passenger which is 65% terminal——

Q. On what page is that?

A. That is on page 13, your Honor. That is 65% line and
458 35% terminal, and practically reverses the percentage on freight, at the top of the next page, page 14—item 31 on page 13, and item 34 on the next page.

Q. That only divides the charge between line and terminal, but what is the proportion——

A. That was all on a percentage basis in all these tables.

Q. I know, but what percentage did you adopt? This is only the division between the terminal and the line.

A. Yes, sir.

Q. What is the sum of it, what sum is to be divided between that for stopping and starting?

A. I will find it for you in just a minute. In these two months of November and December——

Q. I mean, in what exhibit?

A. Pardon me, sir. In Exhibit No. 12.

Q. Then there was an actual test made?

A. Yes, sir.

Q. For two months?

A. For two months.

Q. On what page is that?

A. It is on the first page, your Honor.

Q. The first page?

A. Yes, sir. That would show more easily in Exhibit No. 7; it is added up there.

Q. In Exhibit No. 7?

A. Yes, sir, on the first page.

Q. "Maintenance of way and structures?"

A. Yes, sir, down about the middle of the page, accounts 31, 32 and 33, in the left-hand margin.

Q. Repairs, renewals and depreciation——

A. To passenger train cars. You notice the amount as-
459 signed to Arkansas, which is in the last column, is $7,352.21. That was the total to be divided for passenger train car repairs. Then immediately above it——

Q. I know, but that does not show what I am asking. In the former case it was thought to be of considerable importance to ascertain the damage to cars by reason of stopping and starting, the local trains, especially the freight trains, and even the passenger trains, stopping so much oftener, and for that reason it was an important question to ascertain how much damage was done every time they started and stopped. I believe, if I remember correctly, that some of them claimed it was seventeen per cent and some claimed it was as high as thirty per cent.

A. Yes, sir.

Q. What did you adopt?

A. In making up this percentage I don't know how much these mechanical officers assigned to that, but in its treatment here we have their concrete judgment.

Q. You just take the whole thing?

A. Between line and terminal. Those are the elements of it, and the result is here. Mr. Rosing can explain that in more detail.

But answering your other question: After we got it divided between line and terminal we took care of that local train proposition

in this way: We divided the line proportion on the basis of the time the train devoted to line and terminal.

460 Q. More frequent stops being made by the local trains by reason of the local business, than the through trains?

A. Yes, sir.

Q. It was claimed, and there was considerable evidence as to that, that every time a train stopped it caused a certain amount of damage to the rolling stock.

A. Yes, sir, the equipment.

Q. It was claimed that the damage was much greater on local trains than on through trains by reason of that fact—they stopped oftener, but there is no such difference charged in these exhibits?

A. I think it has gone into these percentages, but Mr. Rosing, who made them for our line, can answer that in detail. He will be here.

Mr. Hill:

Q. As I understand it, your percentages reach only to the line and terminal: Do you use them between the local and through train?

A. No, sir, but I think they have been considered in other items. I am not competent to answer that because I don't know what underlies them.

Q. You would know whether they go into your calculations here on the gross ton mile division and the net ton mile division of freight carried on the local and through trains?

A. Yes, sir. There again you have the proposition of line and terminal to start with. If the mechanical engineers have made the proper percentage for division between line and terminal you have left only for your gross ton mile the line proportion, and that

461 is Mr. Wellington's straight road running. That is the proposition. I don't know how they got the line and terminal division. Mr. Rosing can answer that.

Q. This is the proposition that is in the mind of the Court, I think: Say your local train stops ten times, or four times, I think the evidence was before, as often as the through train on the line: Is that taken care off?

A. If it stops to load or unload freight that is terminal even if it is on the line. If it stops to take water or coal, that is line. In the instructions to our mechanical officer on our railroad, in considering this formula, we studied our methods and practices of operation; considered the traffic we had and the character of the trains we run. I don't know just how deeply he went into it, but he can tell you.

At this point recess was had until 1:30 o'clock.

462 After recess on Wednesday, June 24, 1914, the following proceedings were had:

Cross-examination of Mr. T. A. Hamilton resumed.

By Mr. Hill:

Q. Mr. Hamilton, in assigning equipment to the state, you have used the car mileage in passenger and freight equipment, I believe?

A. That is correct. That is, in assigning equipment value.

Q. In assigning the locomotive value, you have used a new factor which you call "value mileage?"

A. Yes.

Q. I wish you would explain that to the court.

A. In the locomotive equipment of the company, the range of value of individual units is much wider than the range of value in freight cars and passenger cars; so we felt that a locomotive mile assignment—that is, in the apportionment of locomotive value on straight locomotive miles, would not be a fair reflection of the value of the engines which performed service in Arkansas. And for that reason we took a record of the engines which actually ran in Arkansas, and we multiplied the mileage of each engine in each class of service by the value of that engine in dollars and cents; the value as carried on the company's books, the cost of acquisition. That gave us a constructive figure, which we called "value mileage." It was the mileage of the engine multiplied by its value.

We took the mileage made in the same period by engines on the entire railroad and multiplied our engine mileage by the
463 value of that engine. That gave us the value mileage of all engines on all of the railroad, including Arkansas. Then we found the percentage relationship of the Arkansas value mileage to the total.

Q. You did that on the test months of 1913?

A. Yes, sir, that is set forth in Exhibit 18, beginning with page 2. We found that the Arkansas percentage of this hypothetical figure—the value multiplied by the mileage—in actual service, was 9.13 per cent. We assigned, therefore, 9.13% of the book value of all engines owned by the railroad, to the state of Arkansas.

The value mileage figures built up as I have explained of course, took into consideration only the engines which were in actual service during that period. But we applied the percentage of the Arkansas value mileage to the total value mileage against all the locomotives that were owned by the railroad. That is, the value of such locomotives.

That had the effect of assigning to Arkansas this proportion of the engines which were temporarily out of service during these two months; and the reason for that was that those engines were available for service in Arkansas, or had seen service in Arkansas, as a result of which they were undergoing repairs, and we felt that they should be considered, and that Arkansas should be charged with a proportion of their value.

Q. And you also assigned to Arkansas a proportion of these "relics" that were in the shops, and referred to in the Interstate Commerce Commission report, on the basis of their book value?
464 A. My recollection is that those "relics" had passed away before this test period. They died between the middle of July and the first of October.

Q. They were carried on your books in 1907, weren't they?

A. Yes, and they were in very active service in 1907.

Q. You don't think they were "relics" then?

A. No, sir. As explained previously, those engines were not condemned and scrapped because they were worn out. As a matter of fact, they were condemned because they had become too small to be economically operated on our railroad. They could have been repaired at the time they were dismantled and scrapped, for a nominal, ordinary, over-hauling cost. However, Mr. Rosing, our special engineer, who has first hand knowledge of those engines is here and can verify what I have said, I believe.

Q. If they had been sold, the proceeds would have had to go to the holders of the equipment bonds, wouldn't they?

A. If they had happened to be covered by the equipment trust, that would be true.

Q. It is a fact that they were, isn't it?

A. I don't know that of my own knowledge, and I cannot say.

Q. Hasn't there been a great change from 1907 to 1913, in you might say the personnel of the locomotives on your road?

A. Yes, sir. We are getting, as all roads are, heavier engines, of greater tractive effort, and greater speed capability right along. The country is growing and the business of the company is growing naturally, right along, as that of all companies, to a great extent.

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Q. Your road is buying new locomotives and heavier ones right along?

A. They are bigger and cost more per unit, yes.

Q. The more expensive the locomotive, the more value mileage will be reflected by using the period where the more expensive locomotives were in use, will it not?

A. That is true, and I would like to explain a little further, or add a little to the answer I make to your first question, in explaining this general scheme, if I may, and try to throw some light on that.

In Exhibit 24, which covers the year ended June 30, 1912, that is the year preceding the one in this test period—or the second one preceding it. You will find on page 6 this statement: "In assigning locomotive value to the state of Arkansas for the year ended June 30, 1913, on the basis of value mileage, it was found that 9.13 per cent of the total value of the railroad's locomotive equipment was assignable to Arkansas. That is the value mileage assignment, Judge Hill.

Now, during that year ended June 30, 1913, the actual locomotive mileage run in Arkansas was 9.97%—considerably more. So that we felt that in charging the value mileage percentage developed in this test period throughout these back years—and I will say in every year, and the exhibits so show—the straight locomotive mileage percentage is higher than this value mileage of 9.13%. In doing that we felt we had made at least a minimum charge to Arkansas for the value of locomotives; and in reality the assumption that is made that the type of locomotive used in Arkansas in any of these years was typical of the entire equipment of the railroad of that character.

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Q. Going on the basis that the locomotives in Arkansas averaged with the locomotives used throughout the system?

A. Yes, sir. Whether the average locomotive owned by the railroad as a whole, be it high priced or low priced, we have simply assumed in these figures a typical locomotive in Arkansas.

Q. I believe you testified yesterday that none of the Mallett engines run in Arkansas?

A. Yes, sir, there are 7 Mallett out of a total of 1159 engines.

Q. They are the highest priced engines you have, aren't they?

A. Yes, sir.

Q. What is the average cost of a Mallett engine?

A. My recollection is about $32,000; but that $32,000 each for 7 locomotives, in round figures is $224,000. The railroad stands possessed today of $13,291,000 worth of locomotives; so those 7 are a very small factor in this consideration.

Q. They are slower speed locomotives than any others, aren't they?

A. They are an engine designed to pull heavy loads at slow, uniform speed. I think we get about 12 miles an hour out of them.

Q. What do you get out of an average locomotive?

A. Well, we made a study of that in connection with our time study on trains in this test period, and we found that the through freight train engine in Arkansas made about 19½ miles an
467 hour. They made 19½ miles an hour, and the locals were within a hair's breadth of that.

Q. What did the passenger train make?

A. 32, in round figures.

Q. And the Mallet would make about 12 miles an hour?

A. Yes, sir, in freight service. It always hauls freight and never hauls local trains. It is always used on the through train.

Q. You had no Mallet engines in 1907, did you?

A. No, sir.

Q. At the expense of being a little tedious, I wish you would explain your equation of revenue to compensate for the terminal a little more fully than you have. I never have understood that clearly—but, perhaps, that is due to my density on the subject.

*Q.* We felt that owing to the location of the large terminals of the railroad, practically none of which are within the state of Arkansas, if you except Ft. Smith—and that is not a very large terminal as contrasted with the others—that we should make some allowance of revenue to compensate for terminal cost.

You will recall, perhaps, that we had that argument about Memphis in the Iron Mountain Case. It was all charged to Arkansas because it happened to be just outside the borders of the state. And in the Missouri Case there was a very long controversy about Kansas City, being right at the border.

We tried to overcome that here as best we could, by allowing to the state that had this big terminal, so far as we could de-
468 termine it, a proper revenue allowance to compensate for that terminal cost. So we determined the average cost per ton for the terminal expense in Arkansas—and by that I mean the terminal expense as it is defined in this formula and these exhibits—not the ordinary acceptance of the term. We found that was approximately 38 cents per ton. We also found the approximate cost of hauling a

ton of freight over the rails in Arkansas. We found that was about 4½ mills, in round figures, or about that.

As a result of that we found that the cost per ton for terminal handling was the equivalent of hauling a ton in line service over the railroad 78 miles. That is what the figure brought out by dividing the cost per ton mile into the cost per ton.

So we took these 78 miles which represented the cost of handling a ton, translated into its equivalent in mileage, and added that to the mileage within Arkansas and without Arkansas, in each instance.

To illustrate, we had set up for this entire year 1913, all of the way-bills, or all of the earnings from all of the way-bills, between St. Louis and Ft. Smith—to take that as an illustration, if you will. The haul in Arkansas—I have not the exact distance, but let us say it was 100 miles, and in Missouri 300 miles—perhaps that will illustrate the point; those are not exact, but they will serve. That is the actual road haul. We added 78 miles to the 300 miles in Missouri to allow for the St. Louis terminal cost. We added 78 miles to the 100 miles in Arkansas, to allow for the Ft. Smith terminal cots. Thus we had a constructive Missouri mileage of 378 miles and a constructive Arkansas mileage of 178 miles, and we found
469 the percentage relationship of those two, this built up mileage, and we assigned to Arkansas on the St. Louis, Ft. Smith business that percentage proportion of the revenue. That is freight, I speak of now. And——

Q. Wait one minute. You did not touch intrastate at all?

A. No, sir, because that was entirely in Arkansas. This applies solely to the interstate business.

Q. That was assuming that every ton of interstate freight had one terminal within Arkansas and one terminal without Arkansas?

A. On our railroad?

Q. Yes.

A. Yes, sir. That goes only to the interstate, but now I am coming to the trans-state, if I may. I had not finished.

Where the haul was across Arkansas, and there was no terminal within the state. Let us say on a shipment from St. Louis to Dallas, or the Red River, where our haul stops, just above Paris. We added 78 miles to the Missouri mileage, and we added 78 miles to the other terminal at Red River—that is, the other outside terminal; and we added nothing whatever to Arkansas; and that made the two terminals; two outside the state and none in the state on the trans-state business.

As an illustration, I have made a little research since the last hearing. We thought there was some inequality in this outside cost, and it was assuming too much when compared relatively with the big terminals. I was pleased to find that at St. Louis our two big stations, the Broadway station and our own station at 7th and Cerre Streets, our cost per ton for handling freight has run between
470 36 cents and 39 cents for years; and that is pretty close to this Arkansas average. That strengthened my opinion that this is a fair equation, this comparison of terminal cost here in the state

as a whole with such terminal cost outside. I took that up just to satisfy myself how relatively correct that was.

Q. How about less-than-carload?

A. That is in there, ton for ton.

Q. You disregard the fact that part of this freight moves less-than-carload?

A. Oh, yes.

Q. And treat it all as ton for ton?

A. Carload and less-than-carload, yes.

Q. It is a recognized fact that the less-than-carload costs much more than the carload?

A. That *os* true.

Mr. Moore: The haulage cost?

A. We are speaking of terminal cost, Mr. Moore.

We recognize that fact, but it was a physical impossibility to keep the terminal cost of every carriage that comes in here separately as between carload and less-than-carload. This applies to the pro rate of interstate revenue, and not at all to intrastate.

Now, on the passenger side——

Mr. Hill: Wait a moment, before you get to that.

The throwing in of the less-than-carload with the carload will necessarily make the average cost higher on the carload than it would be if they were kept separate?

471 A. Yes, sir, you would add some burden to it. You couldn't help but do that. Now, on the passenger side, the same plan was followed except we substituted "passenger" for "ton"; and passenger mile instead of ton mile. Shall I go into that in detail, Judge Hill?

A. It is the same thing?

A. It is the same principle, exactly.

Q. You exclude the trans-state passenger?

A. Yes, sir, we exclude the trans-state passenger. We do not charge him with having any terminal in Arkansas. We charge him on the two ends outside the state, on that pro rate.

Q. What would become of your movement, say, like cotton: It would have, as a matter of fact, three terminal handlings in Arkansas?

A. Each way-bill was treated separately. When it moved into the compress we credited all the revenue on that haul to Arkansas. When it moved out from the compress and went beyond the borders of the state, we treated that separately, and that second haul was equated as I have explained here.

Q. The first haul is not equated?

A. No, sir.

Q. Did you follow that plan on other movements that have been developed in other rate cases—interstate movements that have several handlings in the state, like grain and lumber?

472 A. Yes, sir, grain is a negligible quantity with us, but there is quite a quantity of lumber with us.

The Court: You say you charge cotton, or any of those articles

which are entitled to a milling in transit rate, or a compressing rate—as it is called—with how many terminals?

A. Each shipment from the originating point of the cotton, if you will, to the compress, is charged with two handlings.

Q. Two terminal handlings?

A. Yes, sir. And after moving out from the compress out of the state it gets another terminal handling, and it is charged with that.

Q. How about trans-state?

A. If the trans-state tonnage is handled at a station——

Q. Say grain. Grain is brought from Kansas City to Arkansas, and then shipped from Arkansas to Louisiana?

A. Yes, sir.

Q. And after it has been turned either into flour or put into the elevator, and then re-shipped on the same rate?

A. Yes, when that trans-state grain came in and went to a mill in Arkansas, it was charged with a terminal handling; and when it was converted into flour, and the flour was started out from the mill, and went out of the state, it was charged with another terminal handling.

Q. You remember in the other case there was no charge
473 for trans-state?

A. That is correct.

Q. But in this instance you have charged them actually with all the terminals?

A. We had the agents count every ton handled at his station.

Q. Regardless of whether it was trans-state, intrastate or interstate?

A. Yes, sir. We had him keep the interstate separate from the intrastate; he included the trans-state in the interstate, but he counted it ton for ton.

Q. The trans-state, which just went right through the state—say a shipment of flour from St. Louis to Texas, passing through Arkansas: Or a shipment of flour from Kansas City to Alabama; then without any handling there was no terminal charge?

A. No, sir. That was a line expense—haulage.

Q. If it was broken in shipment, by being unloaded and re-shipped, although it might go on the same trans-state rate, the terminal handling is charged?

A. Yes, sir, if the tonnage was handled in the state it was charged.

Q. In the other case, you remember, it was not charged?

A. Yes, sir.

Mr. Hill: Mr. Hamilton, to carry further that illustration on cotton: Suppose cotton originated at Mansfield on your line and was carried into Ft. Smith for compression, was compressed there,
474 and then shipped from there to Boston—which would be the usual handling of such cotton, wouldn't it?

A. Yes, sir.

Q. You would get a terminal handling at Mansfield charged in here on the ground of freight received there?

A. That is freight forwarded from there, yes.

Q. It was received by your company at Mansfield and forwarded from there?

A. Yes, sir.

Q. Then you would get at Ft. Smith a terminal handling because it was unloaded there and re-way-billed?

A. That is correct.

Q. Then you would get another terminal handling there, after consignment, when it was shipped direct to Boston?

A. That is correct.

Q. How would you equate your revenue on that? In other words, how would you apply your 78 miles to that shipment?

A. The shipment from Mansfield to Ft. Smith would have to go out into Oklahoma to get to Ft. Smith.

Q. Disregard that accident?

A. We would treat it as entirely interstate.

Q. Yes, but I am using the broad proposition there. It would run into Oklahoma and be interstate, but disregard that fact.

475 The Court: Say you took it to Jonesboro. That would be a shipment from Mansfield within the state?

A. We charge up a terminal handling of course. Take a shipment from Marked Tree to Jonesboro, there is a compress there. Say it is compressed at Jonesboro and then went on out to the state. We charge up a terminal handling at Marked Tree, and Jonesboro, in assigning the expenses. When the shipment left Jonesboro then it got another charge.

Q. That charge would appear in your station handling?

A. As a terminal station expense and yard expense.

The Court: That would be the expense there.

A. Yes, three expenses. We treat all of that milling in transit and compressing in transit business as two distinct shipments; one into the compressing or milling point and the second is the way-bill out. So the way-bill out from Jonesboro, in the instance we have taken here, would be equated. That is, the revenue on that would be equated with that 78 miles on each end.

Mr. Hill:

Q. Take a shipment from Jonesboro to Boston——

A. To St. Louis.

Q. —where your rate would break. From Jonesboro to St. Louis, disregards the mileage from Marked Tree to Jonesboro?

A. Yes, sir, because that has all gone in on the other way-bill, but is classified as interstate. That is, if it were cotton for the mill or grain which has been classified as intrastate. In

476 other words—we can simplify the whole thing in this way—our people did not go back and pick up way-bills on the milling in transit shipments.

Q. If that were a shipment of lumber handled from Marked Tree in the form of logs, and it then went into Jonesboro and was converted into lumber, and from there shipped out as lumber, that would enter into your intrastate revenue on the haul from Marked

Tree to Jonesboro; and your interstate revenue would begin on the haul from Jonesboro into St. Louis?

A. That is it, exactly.

Q. The Court might not agree with you on the interstate proposition. That question was before the Court previously.

A. As a matter of fact, that has had the effect of crediting to Arkansas more intrastate revenue than it is entitled to on the milling in transit proposition.

Q. And it has also borne some expenses it was not entitled to?

A. It got the revenue. But, as a matter of fact, we found the milling in transit proposition on our line was so small we did not care to go back and work it up, so we gave the state the benefit of it.

Q. Mr. Hamilton, I presume in counting your mileage you count just the portion that you receive and you do not count the mileage of the entire movement, say from Boston to Ft. Smith; you count it from the point where you received it?

477 A. You mean in this equation proposition?

Q. Yes.

A. We count it from the place where the freight or passenger comes upon our rails and we begin to incur expense in transporting; and we stop at the place where the freight or passenger leaves our rails and our expense and revenue cease. We are not interested in anybody else on the proposition.

Q. This is not intended to take care of the terminal, in the sense of the originating point of the shipment, which would be upon another line; but the point where your road receives it from the foreign road?

A. The point where our revenue and expense begins. We are not concerned with what happened to it, or what it cost to handle it, before it crossed the Mississippi River at St. Louis; or what revenue the other carrier got for it.

Q. What is the difference, Mr. Hamilton, aside from the expensiveness of the terminal property, in the handling of a given shipment at St. Louis, received by your road from the Pennsylvania road there, and the expense of that shipment after it reaches Ft. Smith on its way to Texas, and is there set out of a train, put into the yards, and made up into another train going on through to Texas?

A. There is, within the meaning of our divisions in the formula here, no comparison between the two expenses.

478 The expense at St. Louis, where we receive that freight from the Pennsylvania Railroad, as you suggest, is a terminal expense; the freight originated with us there. The expense incident to setting that car out of a through train at Ft. Smith and putting it into another through train to go on to Texas intact, is a line expense. So there is not a comparison between the two; the services are not the same.

Q. Explain where the services are different.

A. It is the same ground we went all over yesterday. It is tedious.

The formula on page No. 3, first item——

Mr. Moore: Can't he refer to his explanation made on that point yesterday?

Mr. Hill: If he thinks it is the same thing, I am willing he should refer to his answers made yesterday as answering this question.

A. The expense of originating and delivering freight is a terminal expense. The expense of passing a car through a terminal, taking it out of one train and putting it into another train while on its journey, is a line expense. There is no other explanation I can think of. The formula is clear on that subject, I think.

Q. If that is satisfactory to you it certain- is to me.

A. It is.

Q. Mr. Hamilton, in regard to these reconciling figures in the freight revenue statistical record, our understanding of those is somewhat different from yours. I am having those investi-
479 gated, and am expecting a report on it. When you go back to St. Louis I will be glad to have you take that up with the accountants again.

A. I will be glad to do so. I have investigated that thoroughly. Judge Hill, you asked me yesterday what the percentage of empty car miles to total car miles was in this state for the last four months of 1907. I find that it was, figuring the divisions which have mileage in this state, just as close as I can get to it, 29%.

Q. I wasn't very far off on my estimate?

A. You estimated one-third, and that was pretty close.

Q. It was 35% during your test period?

A. It was in that neighborhood.

Q. And it was 29 during the actual period?

A. 35 is the whole line figure. I am taking that from our operating sheet. I will be glad to have this made for Arkansas.

The Court: What is the 35?

A. For the entire road.

The Court:

Q. When you made the test in November and December, 1913?

A. Yes, sir. It was about 35 on the whole railroad, but what it was on the Arkansas Divisions I will have to figure.

The Court: In 1907, it was 29?

A. In Arkansas, yes. The other is the whole line.

480 Mr. Hill: Will you get that Arkansas percentage of the test period?

A. I will be glad to do that.

Redirect examination.

By Mr. Moore:

Q. Mr. Oliver found an entry showing overcharges in December, 1907, on account of refunds, amounting to $272,000; and overcharges for the three preceding months, October, November and

December, so much smaller; the total for the four months being $393,000; I wish you would explain that situation if you can do so.

A. The amounts you refer to represent, according to our auditor, claim vouchers which means the payment of overcharges back to the shipper or the consignee, and the relief of agents for switching, which the agent has paid out and gets relief of in this way—the switching being absorbed, and uncollectible items. Those are the major portion of these amounts.

The memorandum which Mr. Oliver prepared, and which we discussed, and of which he has given me a copy, shows that on the entire railroad, during the month of September, the statistician who makes up the figures for the assignment of earnings to states, and who takes these actual figures from the auditor's books and spreads them over the various states, had charged up and deducted from freight revenue in September on the whole railroad $3,987.99; in the month of October he deducted similarly $27,051.68; in the month of November he deducted $90,253; in the month of
481 December he deducted $272,314.

We found that in the statistical record in which the earnings are spread between states.

We found on the company's books, where those earnings are taken up as an entire line proposition—this segregation between states being required by state commissions—but not on the company's books, the actual vouchers paid and entered amounted in September to $91,314.44; and in October the actual disbursements for those refunds overcharges, etc., amounted to $103,664.16; and in the month of November the actual disbursements were $109,506.88; and in the month of December $89,672.01—all of them running between $80,000 and $100,000 per month.

Q. Totalling what?

A. Totaling $394,458.39.

There is a slight difference between that and the total Mr. Oliver shows here on this statistical report, which he calls a reconciling or a balancing figure—that may be our terminology for it—no, that is Mr. Oliver's name for it. In other words, Mr. Oliver was of the opinion that we had done something violent to this month of December in taking out this $272,000. In reality it represents these overcharges and refunds. The impression was current, apparently in the minds of the state's accountants, as we talked about it, that we had done something violent to this month of December. As a matter of fact, the statistician who spread these expenses
482 between states made a mistake, and he discovered that when he went to close up these four months that went into Mr. Douglas' exhibit. So then he went back and picked up what he should have taken up in the other three months. But the actual disbursements of the company for the four months period amounted to $394,458.39, and he deducted here $393,000 in round figures.

I went further into that, to make sure there was no abnormality in the deductions from this revenue on this state. I found that for years, and right now, the deductions from freight revenue, on account of overcharges, refunds and switching absorptions, which

are carried through this channel, have run about $100,000 per month, and still runs about that amount. So this is a perfectly normal situation in the deductions from revenue.

The Court: That is for the entire system?

A. Yes, sir.

Now of this figure in these adjustments of the $393,000 apportioned to Arkansas as Judge Hill has brought out and we have explained, on the basis of road mileage, this 12% item—intrinsically that is not a proper method. There is not any question about it. But it so happened, and we show it in Exhibit 4, when we went over these things, instead of arbitrarily assigning these refunds to Arkansas on a mileage pro rate, we worked them out absolutely item by item, and attached them to the movement in or out of Arkansas, as the case might be, and we found we came within 1% of the results of the former method. That was for the
483 whole year 1913, so we think it may safely stand, for that reason.

The Court: That is what you explained, the one hundredth part?

A. The point we had in mind was, I think the state's accountant thought we had for some reason made too big a deduction for December. It is not abnormal, if you take the four months as a whole, and average the deductions.

I made inquiry in the department where those figures were prepared and satisfied myself. I interrogated the clerk who made this preparation, and his statement to me has been repeated to you here, that that is what he did. He made errors in the first three months, in not getting all of these items. He discovered his error before closing up the figures for purposes of presentation to this Court.

Q. On page 12 of the formula (Exhibit 1) provision is made for apportionment of "line" and "terminal" expenses against individual tracks benefited. Item "A" defines train tracks, etc. Right under the definitions of "A," "B," and "C," and so on, it is provided that tracks and their maintenance included under "A" are located direct to "line" and assigned to freight, passenger or common according to use:

You were asked yesterday if you had charged any portion of the maintenance of these train tracks at stations, to terminal: I wish you would explain that matter a little more fully than you did
484 yesterday. I did not clearly understand that.

A. So far as the track maintenance is concerned, while it is true that to reach a station track—that is, warehouse track or industry track—the car or cars have to pass over a portion of the passing track to get on to that station track, or, perhaps, the switch engine runs out on the main line a piece so they can get over on this station track, by far the major use of that main line and that passing track is by road trains and for the use of passing trains over the track, and not for the receipt and delivery of freight. That is the prime purpose for a main track between stations; that is the prime purpose of your passing track. You may get on it, and must at times, for a short space or a greater space, in doing some station switching.

We do not have great big yards at every little point, that is true, but the track is there and it is kept primarily for the passing of trains that go through that station, and that is the "line" service.

For that reason we have not attempted to charge the switch engine, or the local train while it was switching at the station, with any of the expense of that maintenance proposition. We felt that it was a negligible quantity. That definition does not reach to the division of any other character of expense but this track maintenance. To explain: That has all been taken care of—the expense of the train while it was doing switching—and has been charged
485 to "terminal" service, and so have the other items that are properly chargeable to it.

Q. That is what I wanted you to explain more fully. You were asked yesterday in regard to the balancing of traffic in this state: Have you had a table made up which will give more definite information than you had at that time? If so, please state what it is.

A. Yes, sir. The question was raised here yesterday as to whether the traffic in this state is well balanced or not, whether it moves in fairly equal proportions in both directions, and, as I understood the inquiry, that was directed to the four months ended December 31, 1907. I said offhand that from my knowledge of traffic conditions on the road I would say that in all probability we had in Arkansas the best balanced traffic on the railroad.

I have now had prepared from our original transportation records figures which show that condition. We find that the net tons one mile on the divisions which have mileage in Arkansas during the four months ended December 31, 1907, moved 52% eastbound and 48% westbound. In figuring directions on a railroad we treat north as synonymous with east and south as synonymous with west. So the north and eastbound traffic was 52% in net ton miles, and the opposite traffic was 48%, during this period of 1907.

As to the gross ton miles, the cars and their contents, that is just as well balanced in that period: It is 51% east and 49% west.
486 As to the empty car movement by directions, I have not the mileage here, but this is indicative of it: The percentage which the net ton miles were of the gross ton miles, or the total ton miles including net and tare, eastbound, was 46%; westbound it was 44%.

To my mind that shows that during that four months' period we had as nearly an ideally balanced traffic condition in Arkansas as a railroad ever gets.

Q. Your attention was called yesterday to the difference in the size and capacity of engines in different parts of the line in this state, referring to the steep gradients in the western, and the water level in the eastern part of the state: That related, did it not, to assignment of maintenance as between freight and passenger?

A. Yes, sir, on an engine ton mile basis.

Q. On an engine ton mile basis?

A. Yes, sir.

Q. Do or do not the same relative conditions exist in those two branches of service? In other words, I wish you would explain the

significance, if there is any significance, in the fact that different types of engines are used on those different parts of the line in this state?

A. Yes, sir. On the line from Monett to Paris, which passes through Fort Smith and cuts the northwestern corner of the state, and just below Fort Smith, we climb two of the heaviest grades on the railroad. There is the Winding Stair Mountain, through the tunnel at Jensen, and then north of Chester, running up to Winslow, is Boston Mountain, a very steep grade.

487 On the other hand, between Mammoth Springs, which is right at the state line, and Memphis, or, the Mississippi River, if you will, we have practically a water level route. We drop down off the Ozarks and into the river valley.

As I understood the proposition, it was pointed out that we would have to have a much heavier engine, or two engines, for that matter, to pull a train up Boston Mountain, freight or passenger. That is true. And we could use a lighter engine between the state border at Mammoth Springs, or Thayer, which is right there a mile away, and Memphis. That is true, but it is true for passenger and freight alike.

Over on the Fort Smith line you will find our heavy consolidation engines, the heaviest, the biggest we own, aside from our Malletts, pulling freight up that mountain, and a twin engine, a duplicate of the one which has charge of the train, also attached to it while it is going up the hill. You will find on that line the biggest type of passenger power that we own, big Pacific type engines, our 1000's and they are helped up the hill in the same manner as the freight train.

Over on the water grade line in the eastern section of the state, of which you speak, you will find there the lighter freight engines, our compounds, the 900 class, and the 700 class, much smaller and lighter than the big freight engine that is on the Fort Smith line. You will also find there small passenger engines, the little 200's—

488 the old Memphis Road—Kansas City, Fort Scott & Memphis engines, which were the largest they had when we took over the road. They are still at work.

While we have a heavy type of motive power in the western part of the state, we have it for freight and passenger alike; and while we have a smaller and lighter type of power in the eastern part, we have it on both freight and passenger.

It appears to me, as far as as the matter of gradients enters into the engine ton mile propositions as between the two services, that covers it.

Q. It has been stated here (I think in a report that was read to you) that a large number of engines were scrapped in 1913, thereby relieving the previous years: I wish you would state at what time that occurred and to what extent, if any, it affected the figures in the exhibit for the year ending 1913.

A. June 30?

Q. June 30, 1913, the last year's exhibit.

A. It so happens that I have had some intimate personal acquaint-

ance with those engines that were scrapped. The date on which the scrapping was authorized, the charge therefor entered in our expenses, is fixed in my mind in this way:

I will say first, that I know it was subsequent to June 30, 1913. The auditor's books will verify that, but I know it for another reason. The point is that that scrapping charge is not anywhere in the expenses of the periods which we have here covered in our exhibits.

489 Mr. Nixon, our Chief Operating Officer (formerly our operating Vice-President) was appointed one of the Receivers of the property on July 14 last, which is after the close of our last exhibit here. Shortly after his appointment as Receiver, when he had assumed executive authority, he sent for me one morning and said, "When you are next in Springfield I want you to say to the motive power superintendent for me that he must not dismantle or scrap any of those twenty or thirty engines"—that was his exact language as I recall it—"which are lying back of the new shop at Springfield; that he must have my personal authority for dismantling them." That is how I knew they were still alive on June 30.

I repeated that message to our motive power superintendent, and then shortly thereafter Mr. Nixon again said to me, in referring to the matter, "I have authorized Mr. Dunlap, (our motive power superintendent), to scrap those engines that are out back of the new shop in Springfield, and we will now have to swallow that charge."

So I know the charge was made—without going to the auditor's books, but it can be verified there—after we closed our last period here in these exhibits. The effect of that is that if we had scrapped those engines along back in 1908, 1909 and 1910, perhaps 1907, we would have had a charge in here for their value, less the salvage; and, of course, our expenses are relieved of that by reason of our having staved off that evil day.

490 The Court:

Q. In other words, the expenses that ought to have been charged at that time but were not charged, would have made a greater reduction in the net revenue?

A. Yes, sir.

Mr. Moore:

Q. You were asked on cross-examination if your scheme of division did not assign to Arkansas as much expense for locomotive repairs to light as to heavy engines per mile: How is that?

A. It does assign as much per mile for locomotive repairs on light as heavy engines.

Q. Does that affect the relation in any way, the propriety of the division?

A. As I recall the question, we were discussing the cost of the up-keep of these crippled engines that had been scrapped. I said in response to it, that while they were light probably their up-keep might

have been greater, proportionately, than an engine which was bigger and newer.

But answering your first proposition, the locomotive mile division of maintenance of locomotives does assign the same per mile to the engines in Arkansas, light and heavy; but inasmuch as the assignment that is being made on that engine mile basis is of the locomotive maintenance of the entire line, that would offset, and I think that our value mileage versus straight locomotive mileage percentages show it, that the locomotives running in Arkansas—taking the assignment as a whole—are typical of the entire railroad. If that is true, there is no vice in assigning the maintenance of locomo-
491 tives upon this engine mile basis.

Q. If that be true, it preserves the relation between the states, so far as the expense is concerned, properly preserves the relation of expense in so far as it might be affected by the difference in the light and heavy engines, does it not?

A. If the locomotive assignment of engines working in Arkansas is typical of the entire locomotive equipment of the railroad, the assignment to Arkansas on that basis is a fair one. In any event, it is as close as we could get to it from the records that we have or could get.

Q. There is a term here that I want you to explain. It is on page 17 of Exhibit 1, the paragraph immediately preceding items from 2 to 10. It says,

"The apportionment of the maintenance expenses of line and other common tracks, as between freight and passenger, is to be made on the basis of engine ton miles based on weight of engines in working order."

What does that "in working order" refer to?

A. "In working order" means the engine in shape to pull a train, with its usual amount of water in the tank, the usual amount of coal upon it, and the usual equipment of the various kinds that an engine carries.

However, in making the engine ton mile figure we assumed, after taking counsel with our officials on the ground who know, that the engine would carry, on the average, two-thirds of her boiler and tank capacity in water, and two-thirds of her tank ca-
492 pacity in coal. That is a fair average, day in and day out.

Q. Determined from investigation?

A. As a matter of information that came to us from the people who are peculiarly charged with watching the fuel consumption on our road, our assistant superintendents of locomotive fuel service who were constantly upon the engines, and who know.

Q. On Monday, I believe it was, Judge Hill called your attention to some errors and differences of opinion between you and the accountants for the state in regard to the assignment of expenses to Arkansas made by Mr. Douglas, in the statement that came in his affidavit which was submitted to the Court at the time the temporary injunction was obtained. The figures given in Mr. Douglas' original statement covered the four months ended December 31, 1907: In order that that matter may be clearly understood, I would

like to know what was the result of the examination of Mr. Douglas' figures, made by you and Mr. Oliver—I believe it was Mr. Oliver—the state's accountant, since the adjournment here some ten days' ago?

A. Mr. Oliver, representing the state, had taken exception to Mr. Douglas' assignment of expenses to Arkansas for those four months of 1907—first, on the ground of clerical errors such as the use of erroneous percentages and the erroneous charge to Arkansas of proportions of expenses which should have gone against
493 other states, Missouri or Oklahoma, for instance.

Second, he took exception to Mr. Douglas' assignment of expenses to Arkansas on the ground of the departure in the month of September, 1907, in preparing those figures, in some instances, from the bases laid down in Mr. Douglas' old formula. That is the formula the result of which we have been equating here. That is the one that he then used and still uses, consistently, in making up his reports to the State Railroad Commission.

Third, he took exception on the ground of a departure in preparing Mr. Douglas' figures from some of the bases written into the formula by Mr. Douglas, and which Mr. Douglas departed from uniformly during the entire four months.

And fourth, Mr. Oliver disagreed with us by reason of having misconstrued, or having construed, rather, the meaning of some portions of the formula differently from its author, Mr. Douglas, or his employes.

Q. Mr. Hamilton, I wish you would explain each one of those four classes of exceptions that you have mentioned. I believe you stated that you and Mr. Oliver went over them. State what conclusions were arrived at concerning them.

A. Mr. Press, who is one of my assistants, went into the matter in detail with Mr. Oliver and then they came to me and we went over the matter with Mr. Oliver and arrived at an agreement as to these certain portions of the matter, and, I thought, in its entirety, but I found since that I was mistaken.
494 As to the first matter which is mentioned as a point of difference, that is, the clerical errors, such as the use of erroneous percentages—to elucidate that a little—some per cent, car mile or train mile, for instance, should have been 20% to Arkansas and 80% to Missouri, or 80% to all other states, and the clerk, not using the wrong factor intentionally, got his per cents switched and put 80% into Arkansas and 20% into Missouri.

Now, as to those clerical errors, such as the use of erroneous percentages and errors in charging Arkansas with proportions of expenses properly assignable to other states (of course, this all relates to those four months of 1907) Mr. Oliver and I are in agreement. Mr. Oliver's figures are correct. The clerk had made the errors.

As to the second item, that is, the departure in the month of September, 1907, alone, from the bases laid down in Mr. Douglas' formula, on certain items, but which bases, as shown in the formula, were consistently employed in the other three months, there we are somewhat in disagreement.

These items of difference in September I have had reworked to conform to the uniform method employed in October, November and December, 1907; so that the expenses of the four months of September to December, 1907, inclusive, have been assigned to Arkansas, after I got through reworking the September variations from the formula, upon an absolutely uniform basis in every instance. I have been carefully over the whole matter.

495 The Court:

Q. Mr. Hamilton, in apportioning the overhead expenses that cannot be located, such as salary of the President, salary of the Vice-President, Chairman of the Executive Committee, Treasurer and Auditor, what basis do you adopt?

A. Between states, you mean, or to Arkansas?

Q. Between states.

A. Those are what are known in the Interstate Commerce classification as "general expenses." They fall within that category. They have been divided between Arkansas and the rest of the line on the basis of the assignment to Arkansas of all other expenses. The theory is that they supervise all the other expenses——

Q. Supervise——

A. Yes, sir. That is the cost accounting method.

Q. Is there any charge made for extraordinary expenses which happen only occasionally, but do happen at times? Take, for instance, a couple of years ago when the damage from overflow was great on the roadbed of the Frisco, and for some weeks they were unable to run trains in certain portions.

A. Yes, sir.

Q. Is there any allowance made for these matters in any year except when they actually occur?

A. That hits us in our charge to expenses when we have to make good that flood damage right at that time.

Q. That year?

A. Yes, sir.

Q. So if there was nothing of that kind in 1907, it would not be charged?

496 A. And we never had any in the fall. No, sir, they are taken up then and there. Occasionally——

Q. I mean, they are not spread over a certain number of years?

A. No, sir.

Q. If there should happen to be a very serious accident, one that might cost several hundred thousand dollars or up to a million dollars, say, is that charged just to that year?

A. It is charged as we repair the damage, yes, sir.

Q. Then nothing is allowed in any other year except the year in which it happened?

A. No, sir. We had one instance where we lost some ties up here between Memphis and the state line, which were washed away. We did not find that out until we took our inventory. That was some six or seven thousand dollars. That did not get into the same month, but it got into the same year. We are required by the Interstate Commerce——

Q. Take that overflow damage: I believe for some little time you were unable to run any trains.

A. In one year.

Q. 1912, I believe?

A. Yes, sir.

Q. Of course, the track had to be repaired and replaced, and you had to run over some other line. I don't know that it has ever happened on your road, but a few years ago the Iron Mountain had to build a new bridge across the White River: Extraordinary expenses of that nature are charged to the year in which they are incurred and not spread over a series of years?

497 A. Yes, sir, we are not allowed to defer the charges; they go into the month in which the money is spent.

Mr. Hill:

Q. Such a thing as a new bridge would not be——

A. Replacement is what the Court spoke of, as I understood it.

The Court:

Q. Yes. Take where a bridge is worn out, or you have a double track and you have to change it.

A. Yes, sir.

Q. If the bridge is not strong enough to carry the heavier trains you put on there; or in case of an overflow, or a heavy rain which causes a washout which may prevent you from using your road for a month or six weeks, all that is charged to that particular year?

A. As to the aggregate.

Answering your question about renewing a bridge: If we renew it with a heavier structure than we had there before, the difference in the cost we are allowed to charge up to "Additions and betterments," but the cost for renewal and replacement we have to charge out just as we make them. For instance, the Van Buren Bridge has been renewed, and we swallowed that whole charge, I think, in three or four or five months. But that did not come within this particular period.

Q. I supposed that was the case, and you will remember I reached the conclusion that there should be in normal years some provision for extraordinary losses or expenditures of that nature.

498 A. The Interstate Commerce Commission has not allowed us to do that, and we haven't been rich enough, even if they had to set up a reserve for it, so we just had to swallow it as the misfortune overtook us.

Mr. Moore:

Q. Mr. Hamilton, what effect would the correction of the clerical errors you spoke of have on the assignment of expenses to the state made by Mr. Douglas in the four months of 1907?

A. The corrections of the clerical errors and the reworking of Mr. Douglas' figures to make his application of his formula in September line up with what he did in the other three months (and has done ever since down to this present date) would make the following

change in the figures that we showed in our Exhibit No. 27, covering those four months:

That is to Arkansas expenses in those four months—it would add for the "Maintenance of Way and Structures" $1,525.61.

It would deduct from the Arkansas expenses—because Mr. Douglas had over-assigned to Arkansas—from "Maintenance of Equipment," $2,524.48.

It would deduct from the "Traffic expenses" charged to Arkansas by Mr. Douglas, $567.42.

It would deduct from the "Transportation expenses" assigned to Arkansas by Mr. Douglas, $46,353.06.

It would deduct from the "General Expenses" charged to Arkansas by Mr. Douglas, $479.85; or a total net deduction from the Arkansas expenses, as Mr. Douglas assigned them (which we
499 equated, of course, in our Exhibit No. 27) of $48,399.20.

By the Court:

Q. You mean, from the entire Arkansas business, or the interstate business?

A. All the business within the state. That is just the gross assignment to Arkansas.

Q. That is corrected in Exhibit No. 27?

A. Not yet, sir.

Mr. Moore:

Q. Have you reworked Exhibit No. 27 for the purpose of showing the effect of those deductions?

A. Yes, sir, I have here Exhibit No. 27-A, which is an exact reproduction along the lines of Exhibit No. 27, with these deductions of overcharge in expenses to Arkansas.

Q. Will you file that as an exhibit?

A. Yes, sir.

Q. So the assignment of expenses to Arkansas on the basis of Mr. Douglas' old formula, in your exhibits covering the years ended June 30, 1913, 1912, 1911 and 1910, and the four months ended December 31, 1907, are now upon a uniform and consistent basis of division after you made the corrections in Mr. Douglas' 1907 figures, which you have explained?

A. Yes, sir, they are.

The Court:

Q. What did you do about that rental of the Kansas City and Fort Scott road?

Mr. Moore: I am coming to that directly, if your Honor please.

The Witness: We just reworked Exhibit No. 27, your Honor, and then thought we would show the effect of eliminating the
500 rental on all the exhibits at one time.

The Court:

Q. I believe it is about $12,000 on the intrastate?

A. In one period, yes, sir.

In answer to your question, Mr. Moore, I have gone carefully over Mr. Douglas' application of his old formula for assignment of expenses to Arkansas and scrutinized his working sheets in detail for the years ended June 30, 1913, 1912, 1911, 1910, and the four months ended December 31, 1907.

After correcting the clerical errors in the four months of 1907, and the misapplications of the formula in the one month of September, the basis of division applied by Mr. Douglas in assigning expenses to Arkansas in these years—1912, 1911 and 1910—has been in exact agreement with the basis that Mr. Douglas used, item by item, in the year ended June 30, 1913.

We have been carefully over that entire ground and know whereof we speak.

Further, after making this deduction of $48,399.20, as reworked in Exhibit No. 27-A, the four months ended December 31, 1907, are also now, as to basis of division, in exact agreement with the methods employed by Mr. Douglas in the year ended June 30, 1913.

Mr. Moore:

Q. Did I understand you to state on cross-examination that in your exhibits you have not accepted Mr. Douglas' assignment of expenses to this state as properly chargeable in the various periods which are covered by these exhibits?

501 A. No, sir. As an academic proposition, I think Mr. Douglas' bases are wrong. They are not all use units, by any means. What we have done, however, is to determine the relation of what Mr. Douglas' formula brought in 1913 to what we got by completely reworking 1913 on a basis of our new formula, Exhibit No. 1, and when we had established that relationship we equated Mr. Douglas' assignment in the years 1912, 1911, 1910, and these four months of 1907, to a new figure on the basis of that 1913 relationship between the two formulas, and that is all explained in Exhibit No. 23.

But it does not make much difference whether Mr. Douglas divided these expenses in all these back periods by engine miles or potatoes, just so he used the potatoes consistently and used them in 1913, where we made our comparison of his results with the new formula. As a mathematical proposition our equation is correct.

The Court:

Q. Did you make any investigation which enables you to testify intelligently as to whether the four months from September to December, last, are a fair average of the entire year's business? That is conceded to be practically one-third of the business.

A. No, sir, they are more. I know that as a matter of information, because those are heavy months. I don't know it as a matter of exact figures, but Mr. Moore has instructed me to prepare figures showing the normality proposition, and I am going to work them up just as soon as I get through and get to where the records are. I will

get you those a little later. I have been at work on it, but had
502 to drop it when we came here.

Mr. Moore: We will get that later.

The Court:

Q. So far as you are advised at present you think those four months' earnings would exceed one-third of the entire fiscal year?

A. I feel reasonably certain of it, because those months of September, October and November were in the flood tide of our prosperity, and the ebb did not set in, as we have determined to our own satisfaction, until about the middle of December.

I read the earnings figures to you yesterday.

The Court:

Q. I know, but would those four months be a fair average of the year?

A. I think they are for the other months of the year in this section of the country, but I am going to determine that exactly.

Mr. Moore:

Q. Then I understand from your answer to my last question, assuming the expenses you have shown in the exhibits covering the various periods testified about by you, and assigned under Mr. Douglas' old formula, have been assigned uniformly, on a consistent basis, it makes no difference, so far as the mathematical accuracy of your equation is concerned, whether the bases laid down in Mr. Douglas' formula and adopted by him, are of themselves proper bases for such assignments?

A. No, sir. If he used the same units consistently—of course, allowing for these clerical errors which we have corrected—
503 throughout all the periods that we have presented exhibits for prior to 1913, if he used that same basis or the same units consistently in 1913 where we compared his system with our new formula, and I have had his working sheets gone over under my direct supervision in the last few days since we were last here, and found he did that through all these years, and, having had his figures tested for accuracy I found no correction up to the time I left St. Louis. If he has done that I don't care if he has divided his expenses by engine miles, potatoes, or turnips, just so he has used the potatoes or turnips consistently. It is a matter of sound mathematics in making this equation.

Q. Take up Mr. Oliver's other exceptions: I understand you say that Mr. Douglas has deviated from his typewritten formula in the treatment of some items of expense in each of the four months of 1907, for which Arkansas expenses have been submitted here.

A. Yes, sir.

Q. I want that explained.

A. Mr. Douglas' formula, for instance, states that loss and damage to freight is to be assigned to individual states on a basis of freight car mileage. That is the way he has it written in the formula.

In the four months of 1907, and in the years 1910, 1911, 1912 and 1913, Mr. Douglas consistently ignored that written formula and used freight train miles. He put down car miles and maybe intended to use car miles, but certain it is that he used the
504 train mile and used it consistently throughout each month in all of these periods.

As a matter of fact, I do not think that the freight train mile or freight car mile—Mr. Oliver inclined to the freight car mile, but I don't think either one is worth anything as a division of that expense. Here in the 1913 analysis it was located actually; there is no conjecture about it. We compared that actuality with the results Mr. Douglas got and so carried it back with these equations.

I have satisfied myself that Mr. Douglas did use that train mile basis consistently throughout all this period.

Q. And whatever deviation has been made, has been made consistently and uniformly?

A. He has been consistent.

Q. Were there any other deviations made by him from his formula?

A. Yes, sir. His formula as written states that wherever possible expenses are to be localized to operating or accounting divisions and divided, after such localization, upon units pertaining directly to such operating or accounting divisions.

In assigning to Arkansas "Repairs, Renewals and Depreciation of Work Equipment," Mr. Douglas has again departed from his written formula. He divided that expense for the entire railroad between states, without going to the trouble of first localizing it to the accounting divisions, but he consistently did that.

He wrote down something and did not do it. I have
505 satisfied myself that he was consistent in his deviations. In other words, he had one idea in his mind and another one on the printed formula which he gave to the state's accountants. The fact is, his basis has been uniform, and as a matter of fact, his clerks are following this written precedent they found in the preceding months' figures, and doing the same thing. Mr. Douglas' clerks fell down hard on that proposition in the month of September.

Q. I was just going to ask you about that.

A. He did localize it to the division and then subdivided it, but forever afterwards, and down until now, he stuck to his text, but not his written text. So we went back and corrected September and put it on a uniform basis with all of the subsequent periods, and that is in that $48,399.20 that we have taken out of Exhibit No. 27-A.

Q. That is after you refigured it and put it on the same basis as the other?

A. It is now uniform and is in line with all the other subsequent periods down to now.

Q. Judge Hill asked you about some other items, which he stated were treated by Mr. Douglas in the same manner as the work equipment repairs, which was under discussion between you and he for a while: What were they?

A. There was enginehouse expense, road, fuel for road locomo-

tives, freight and passenger separately; the operation of fuel stations, road; water, lubricants and other supplies for road locomo-
506 tives. Mr. Douglas did exactly the same thing with those that he did for these work equipment repairs. Beginning with October, 1907, he did not localize them to divisions. He has been consistent with that ever since. He made an entire line prorate. In September he made the same error that he had made on the work equipment repairs, so we took September, straightened it out and put it on a uniform basis with all the subsequent months and years down to date, lined it up, and that is reflected, too, in this change in Exhibit No. 27-A. That is on a uniform basis for the purposes of our equation.

Q. I understand the departure was in September, 1907?

A. Yes, sir. He had a written formula, and that says he was to localize these items to the divisions—I do not blame Mr. Oliver for taking exception to it, and then divided it on the division unit. Now, in September he did that, but beginning with October of 1907, he did not do it, and he consistently did not do it, so we straightened the tail out so it would not wag the dog.

Q. Do these deviations that you have referred to cover all those that were made by him from his formula?

A. Yes, sir. As I see it, what Mr. Douglas has done in these instances, is to change his basis employed in actual practice and neglected to change his written formula that he gave to the state's accountants. He gave it to them, I did not.

As I see it, it is not what his formula said he was going to do, but rather what he actually did, that counts; and what he has
507 done in this assignment of expenses to states in the year ended June 30, 1913, on which we based our equation, he has done uniformly throughout all of the years ended June 30, 1912, 1911, 1910, and in the four months ended December 31, 1907, with the exceptions I have explained, for the month of September, 1907, and which we have gone back and corrected and lined up uniformly with all the other periods when we got September straightened out and Mr. Oliver's detection of mathematical errors corrected.

Q. You mentioned a point of difference concerning Mr. Douglas' assignment of expenses to the state, which has arisen between Mr. Oliver and yourself, and I believe you stated Mr. Oliver had construed the meaning of some portion of Mr. Douglas' formula differently from the application made by Mr. Douglas: Explain that, please.

A. For instance, Mr. Douglas' formula provides that repairs, renewals and depreciation of locomotives is to be assigned to individual states on the basis of "locomotive miles." That is the exact terminology in the formula. I explained, in answer to Judge Hill's question regarding that, that Mr. Douglas construed that to mean freight and passenger road locomotive miles. That is what he meant when he put that down. To my mind, it does not make any difference what anybody else thought he meant; he meant it because he has consistently done that throughout all these years. I repeat, Mr. Douglas used this road locomotive mileage, freight and passenger, throughout all of these years, and to my mind, it makes no differ-

ence what Mr. Oliver thought he meant, or what interpreta-
508 tion anybody placed on it. He did that. That was his basis and he used that.

So far as the equating of Mr. Douglas' figures is concerned, that is the only purpose we used them for in these exhibits. It is not material, to my mind, what construction is placed on it, so long as Mr. Douglas' own construction and own application of it has been consistent and uniform throughout all of these periods.

Q. You regard that equation as made by you as a correct mathematical proposition.

A. Emphatically, yes, sir; it rests upon a sound basis.

Q. And correct in principle for the purpose of determining what the effect of the facts contained in his formula——

A. I do, and I am happy to say that I have some distinguished company.

The differences that Judge Hill spoke of—and that follows your last question—those were first about $62,000 or $63,000, and then when we got this $48,000, he spoke about the other $14,000 and what that grew out of.

That grew out of Mr. Oliver having reworked the subsequent periods of October, November and December to fit September, although Mr. Douglas had only deviated in September and had been consistent ever afterward. It grew out of Mr. Oliver interpreting Mr. Douglas' mind on this locomotive mile business, although Mr. Douglas has been consistent in his own interpretation. That is what made up these differences of opinion. Mr. Oliver reworking
509 three months to fit one month, instead of reworking one month to fit the other three months, is what made the other $14,000.

So that we have corrected the actual difference of $48,000, when we have done that and have investigated and found correct Mr. Douglas' work in the other periods (which we have done) the basis of the eequation is mathematically a sound one in these exhibits.

Q. Judge Hill questioned you on cross-examination in regard to some errors and differences of opinion between you and the accountants for the state, in regard to the assignment of expenses to Arkansas as made by Mr. Douglas in the statement attached to his affidavit, on the figure given in Mr. Douglas' original statement covering the four months ended December 31, 1907: I want to know now the result of the examination made jointly by you and the state's accountants of Mr. Douglas' figures, since last we were here.

A. We have covered that all thoroughly.

Q. Does that cover entirely all the differences that existed between you and Mr. Oliver growing out of those matters that you have been testifying about?

A. Yes, sir. Judge Hill was discussing when he last mentioned the matter, the $14,000 difference, in addition to this $48,000, and I have explained that that was by reason of Mr. Oliver having reworked three months to fit September, instead of reworking September to fit the three months, as we did. Following that out to a con-

clusion, this equation we have made is sound not only for the
510 four months, it is sound for four whole years.

Following Mr. Oliver's action in regard to that September deviation from the formula, we would have not only to rework the three months of 1907, but to rework the entire other four years, 1913, 1912, 1911, and 1910. That is the point I am making. We lined September up by reworking it where Mr. Douglas had departed from this formula. So, having done that, that portion of the $14,000 disappears.

Then again, Mr. Oliver construed what Mr. Douglas had written down differently from what Mr. Douglas did, and he reworked it according to his ideas of what Mr. Douglas meant when he wrote that down—on that item I spoke of—and Mr. Douglas stuck to his text as he understood it, throughout all the period; and that made the balance of that $14,000 difference.

Q. The point I want to get at is this: These matters we have been over cover all the matters that were pointed out to you by Mr. Oliver?

A. Yes, sir, and when we have made that $48,000 correction we have made all that is necessary to make our equation sound, mathematically.

Q. Mr. Hamilton, have you made any investigation as to the effect of these rentals of the Kansas City, Fort Scott & Memphis——

A. Yes, sir; you have a copy of it there, Mr. Moore.

Q. Yes, I have a copy of it.

A. I made that, but I haven't had time to have it blue-printed, but I have two copies here which can be filed, and I can substitute the blue prints for it as soon as I get back to St. Louis.

511 Mr. Moore (to Mr. Hill): I asked if he had figured out the effect on the net earnings of eliminating that rental item.

The Witness: Yes, sir; I have taken each of our exhibits here in which a showing of balance available for return on the property was made, and have eliminated the charge which was originally shown therein for the rental of the Kansas City, Fort Scott & Memphis Railway, and have shown the effect of that elimination in terms of the balance available for return on the property value, in dollars and cents, and in percentages; for the intrastate freight and intrastate passenger and the total intrastate business, also for the total interstate business, mail and express, and all business in the state. That covers the four months of 1907, and the years 1910, 1911, 1912 and 1913.

The Court:

Q. It is $12,114.60 for the four months?

A. Yes, sir.

Mr. Moore:

Q. Go on and finish your answer.

A. The effect of eliminating that rental charge, but leaving on the exhibits the rental earning of the Memphis Bridge, the big credit—of course, that all had no effect on the intrastate, but did

upon the total business—was this: In the four months ended December 31, 1907, we still had a deficit of $9,300 on the intrastate freight; a deficit of $4,600 on the intrastate passenger, and a total deficit of $13,900 on the intrastate business.

512 On the total business in the state, intrastate, interstate, freight and passenger, mail and express, taking out the rental of the K. C. F. S. & M. Railway, and leaving in the rental credit of the Memphis Bridge, our return was 3.15%; that is, per annum, in that four months' period.

In none of these years on up to 1913, represented here, was there any return after taking out the rental charge on the total intrastate business. The deficit ranges from $10,000 to $39,000 in those four years.

In one case we did have a return of 1¼% (that was in 1913) on the intrastate freight, but the passenger wiped it out and we were short $10,000 of paying our operating expenses, taxes and rentals, on our total intrastate business. That is eliminating the rental, the K. C. F. S. & M. Railway rental.

Mr. Hill (to Mr. Moore): Let me ask Mr. Hamilton a question.

Q. In your new exhibit, No. 27-A, you show a percentage of return on all property, on all business in the state, of 2.16?

A. Yes, sir.

Q. And in this Exhibit No. 28 you show 1.78%?

A. (To Mr. Moore.) Will you let me see it, Mr. Moore, please?

Q. I want to be sure I am matching the same figures.

A. (After examining Exhibit No. 28.) No, sir.

Q. Why was this 1.78%, the last figure?

A. No, sir, the top group, Judge Hill. That below is
513 another proposition. We show 3.15——

Q. 3.55?

A. No, 3.15. I am just discussing the top group. That is one proposition and this is another (indicating on Exhibit 28.)

Q. This 3.15 you set opposite the 2.16?

A. That is it; that is what taking out the rental charge does to it. That is the total business.

The Court:

Q. That is on intrastate and interstate?

A. The total business, yes, sir. We have a deficit of $13,000 on the state business alone.

Mr. Moore:

Q. I understand that in the years 1910, 1911, and 1912, that is based on the court rate——

A. We do not come to that, if you please. In these figures here of intrastate business we have not been able to deduct the diminution in freight revenue which would have occurred had we handled the exact volume of traffic but applied to it Standard Distance Tariff No. 3.

The Court:

Q. The two cent passenger rate?

A. That is the freight side. It is the two cent passenger proposition here. These freight returns are on a basis of rates higher than the Distance Tariff No. 3, mostly the court tariff, except for the little interval after this Court granted the first injunction and we had in our own rates, but they were on the court tariff with that exception.

If we took out that diminution which would occur if we applied the state rates, Standard Distance Tariff #3 for the same
514 volume of traffic, of course, this return would be diminished where there is a little return or the deficit increased. As an index of that, we did re-apply and rework the earnings figures for the year ended June 30, 1913, and that diminution in that year was $20,390. That is enough to wipe out pretty nearly all of the freight return in that year, which was only——

Q. You mean if you had charged during that time the freight rates enjoined, the deficit would have been $20,000 more on intrastate business?

A. That is correct, and the freight business alone would only have shown a balance of $4,000 where it now shows $24,000, but the deficit on all business would have been $30,000.

Q. Did not the figures of Mr. Douglas for those four months show what the earnings were under the enjoined tariff?

A. I am not clear as to that, and I would like to be sure of that. (To Mr. Moore) Have you the affidavit there?

Mr. Hill: The injunction did not go into effect, it was not granted until September, 1908.

The Witness: Yes, sir, that is correct, your Honor; that was the Commission rate, and the two cent fare.

Mr. Moore: If you will notice my question does not relate to that.

The Witness: So the showing for the four months would not be in any way affected by that; that is on the lowest basis of rates we have had in the state. As to the passenger——

The Court:

Q. These exhibits are based upon these four months of Mr. Douglas?

A. Yes, sir.

515 Q. Then they are based upon what the earnings were during the time that the Standard Distance Tariff No. 3 was in effect?

A. That is correct.

Mr. Moore: That is not questioned, that is conceded, if your Honor please.

The Court: Mr. Hamilton was under another impression a few minutes ago.

The Witness: I was mistaken.

Mr. Moore: My question did not refer to that.

The Witness: There would be no further diminution of these figures; they are on bed rock now.

The Court: That is all right.

The Witness: In the passenger figures which we show here, and in the exhibits on which this is based, we have taken out the diminution which would occur on the same volume of traffic at a flat two cent rate. We have taken the assumption that we would have gotten two cents for every passenger mile.

Q. If Mr. Douglas' statement was based on the two cent——

A. I should have said since 1907, these other years.

Q. Is not this Exhibit No. 27-A based upon what the earnings were in 1907?

A. Yes, sir, but we have also submitted exhibits for the years 1910, 1911, 1912 and 1913. Those are shown here in this sheet, too.

Q. But these exhibits are the earnings before the injunction was granted and while the two cent rate was in force?

A. That is correct as to the four months, yes, sir.

Q. Then, of course, that is the basis upon which this
516 exhibit is made?

A. That is correct, sir.

Q. So there is nothing to come off on account of any of the lower rates?

A. Not in that exhibit, no, sir.

Mr. Moore:

Q. Is that Exhibit No. 28 based upon the figures shown in Exhibit No. 27-A after making the corrections in that exhibit that were made in the four months?

A. In so far as it relates to——

The Court:

Q. I understand your position: In case the Court finds that the rental of the Kansas City, Fort Scott & Memphis road is erroneous then this would be the result?

A. Yes, sir, that is correct.

Mr. Moore:

Q. And is based on the corrected exhibit, as to 1907?

The Court: Leaving that out entirely.

The Witness: I explained also in connection with this matter the other day, that by reason of having paid this rental for the Kansas City, Fort Scott & Memphis Railroad (which the first group of figures which this exhibit takes out of consideration) we have secured quite heavy rentals on the Memphis Bridge. The situation was this: The Kansas City, Fort Scott & Memphis Railroad, on which the Frisco has a leasehold estate, owns 100% of the stock of the Kansas City-Memphis Railway and Bridge Company; that is the Memphis Bridge, so-called, and it secures control of that Bridge by reason of its leasehold estate, for which it pays this rental which we have now taken out as a rental debit.

517 In order that the Court may see both sides of the picture, and without suggesting that that rental credit should come

out, the second table of figures on Exhibit No. 28 shows the effect on the interstate and total business, after taking out the rental credit, as well as the rental debit.

Q. But is not that included in your valuation of the property?

A. Yes, sir.

Q. And you ask for interest on that investment?

A. Yes, sir.

Q. Then, of course, whatever it earns ought to be given credit——

A. Yes, sir, we are of that opinion, but we wanted to show both sides of the picture, that was all; that you might have it all before you for handy reference.

Q. Suppose A. owns a railroad and rents it to B. on a basis of six per cent, and B. would charge A. six per cent for his company and six per cent for himself: Then the people would be taxed to pay twelve per cent, or if they adopted a basis of seven and one-half per cent, he would get fifteen per cent.

A. We did not mean to suggest that that ought to come out. We thought you would like to see the picture of both sides of it.

Q. Is that what the last part of your Exhibit No. 28 is?

A. Yes, sir; it shows the two propositions.

Mr. Hill:

Q. Let us understand this second part: You are claiming one-half of the Memphis Bridge as part of your property in Arkansas on which you are entitled to a return?

518 A. Yes, sir.

Q. Do you mean you want to deduct the rent you get out of that——

A. No, sir, I said I did not want to suggest anything about it, but we wanted the Court to see both sides of the picture; that is all. I don't suggest that it should come out—I don't think it should, in all fairness, but I did not know but what Judge Trieber might ask that question.

Mr. Hill: There is practically the same question here about this Memphis Bridge that we had in the Iron Mountain case about the Paragould track. Your Honor remembers that?

The Court: Yes, I remember it.

Mr. Moore: My impression is that we are not entitled to charge those rents if we eliminate those we receive.

Mr. Hill: I am satisfied you and I will not disagree on the law of that.

Recross-examination.

By Mr. Hill:

Q. You remember that in the Iron Mountain case there was a trackage—I think that came in the form of rent, also, did it not, Mr. Hamilton, for the Paragould track?

A. Yes, sir.

Q. That ran from Illmo to Paragould?

A. Yes, sir.

Q. That was used exclusively for——

Mr. Moore: I remember that.

Mr. Hill: I contended that should be eliminated from the property both on the expense side and the revenue side of it, but I never got a ruling on that specific question.

519 Q. Mr. Hamilton, that is practically the same situation in this Memphis Bridge, is it not?

A. Yes, sir.

Q. Except that this is used by both passenger and freight instead of being used exclusively——

A. Yes, sir, and this exception: That we have not charged a dollar of Memphis Bridge expenses to the intrastate business, and——

The Court:

Q. It is not charged to the intrastate?

A. It is all charged to the interstate, and the earnings are all credited to the interstate. This big rental credit all goes to the interstate.

Mr. Hill:

Q. But the property is there?

A. Oh, yes.

Mr. Moore:

Q. The property follows the expense?

A. Yes, sir.

Mr. Hill:

Q. It is the same proposition in another form, as I see it, as the Paragould.

The Court: The theory on which this case is being heard is entirely different. The other case was not heard on the use. There is nothing charged and there is nothing credited to it; it does not get into the values.

Mr. Hill: It does not go into the values.

The Court: It goes into the values as to the property in Arkansas, but not that part confined to the interstate business, if I understood Mr. Hamilton's testimony.

The Witness: That is correct.

520 Mr. Hill:

Q. Is not a part of that Memphis Bridge assigned to the intrastate upon which a return is sought?

A. I think not, sir.

The Court: It couldn't be if you only assign the use of it, because it is excluded entirely from everything now since the rental is taken out.

The Witness: All its expenses are assigned to the interstate.

Mr. Hill:

Q. You are dividing the property as a whole, in the state, upon the transportation expenses: Part of those transportation expenses are intrastate?

A. Yes, sir.

Q. Don't that follow, that you are dividing part of this bridge on that same basis?

A. Not any more than it follows that I am deducting part of the Van Buren Bridge and charging that Memphis Bridge to the interstate traffic, because that is the very beauty, as we see it, of our plan. Where the expenses have gone the property goes. That is exactly what we think of it.

Q. That is a matter of argument. I want to understand the facts.

A. The case is not parallel, so far as I see it, answering your question as to the Iron Mountain. They tried to load the whole thing onto the state, intrastate business. We just turned around here and put both the earnings and expenses and property under the interstate.

Q. It is just a question of whether the formula will work out a different result. The situation of the property, as I under-
521 stand it, is just alike.

A. Yes, sir. If you will have your accountants work it out, I think you will be satisfied of it, too.

Q. Your Van Buren Bridge is not affected as the use of that by the Iron Mountain was affected by interstate, the same way?

A. Yes, sir.

Q. This is all intrastate.

A. You see, our through trains pass over it; it might be interstate—it might be any character of traffic.

At this point adjournment was taken to Thursday, June 25, 1914, at 9:30 o'clock in the forenoon.

522 *Testimony of F. G. Jonah, Reduced to Nar-ative Form.*

F. G. JONAH testified that he was chief engineer for the St. Louis and San Francisco Railroad Company and was familiar with the physical properties of said Railroad; that he had made an examination of its and prepared exhibits showing the value of physical properties of said road.

Subsequent to the testimony of F. G. Jonah an agreement was reached between the parties hereto as to the value of the road for the purpose of this litigation, and the testimony of F. G. Jonah became immaterial to the issues to be determined and on that account is not set forth more fully.

It is agreed by Counsel hereto that the above and foregoing is a correct statement of the testimony of said witness, and that his testimony as given was immaterial to the issues in this case.

(Signed) JOS. M. HILL,
*Solicitor for Appellants.*
J. M. MOORE,
*Solicitor for Appellees.*

Endorsed: Filed July 1st. 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

523 *Testimony of Daniel Bonticue, Reduced to Nar-ative Form.*

DANIEL BONTICUE testified that he was the Civil Engineer and at one time had been chief engineer of the Kansas City, Fort Scott and Memphis Railroad, now a part of the Frisco System. He testified that he was familiar with the St. Louis and San Francisco Railroad Company in Arkansas; that he had made an examination of it so as to inform himself as to the value of its physical properties.

He testified in regard to the value of the properties, and subsequent to his testimony, parties hereto agreed upon the value of said properties for the purpose of this litigation which rendered the testimony of said Bonticue immaterial, and for that reason, by consent of parties hereto, it is not fully set forth.

It is agreed by Counsel hereto that the above and foregoing is a correct statement of the testimony of said witness, and that his testimony as given was immaterial to the issues in this case.

(Signed) JOS. M. HILL,
*Solicitor for Appellants.*
J. M. MOORE,
*Solicitor for Appellees.*

Endorsed: Filed July 1st, 1915. Sid. B. Redding, Clerk, by W. P. Feild, Jr., D. C.

524 T. A. HAMILTON recalled:

Questions by the Court:

Q. I want to ask Mr. Hamilton one or two questions now clear to my mind, on matters of accounting. If no allowance is made in the valuation of railroad property for the depreciation of perishable property, such as ties, rails, fences, and so on; and on the other hand, there is no charge to maintenance account, or there is no depreciation account charged to expenditures or cost, does that even itself or not?

A. It would depend entirely upon whether you had kept the property, rails and ties, up to 100% of their original condition. If you had it would even itself up.

Q. You could not keep it up to 100%, because you won't throw a rail away when only 10% is gone, or a tie, when 10% or 15% is gone. But as a railroad goes along charges are made in it when it becomes necessary?

A. Yes, sir.

Q. As I understood this gentleman, Mr. Jonah, to testify, he made no allowance for that?

A. Yes, sir.

Q. On the other hand, I understood you to say there is no depreciation account charged to expense account?

A. Yes, sir.

Q. Now as I understand it, you take a manufacturing establishment, and they may at the end of each year charge to the profit and loss account so much for depreciation?

A. Yes, sir.

525 Q. Of course, if they do that then it evens itself because the earnings will be that much less, equal to the loss?

A. Yes, sir.

Q. As I understood it that was not taken into consideration in fixing the value here. And, on the other hand, there was no charge on the account, nothing deducted from the gross earnings for depreciation. Does that even itself?

A. It would if you had charged in your maintenance sufficient to keep the property up to 100%, or on the other hand, if you were permitted to consider your property today is 100% efficient; or of 100% value. If there is any latent depreciation in the property then there should be a corresponding charge allowed in the operating expenses.

Q. But if there is no such charge in the operating expenses, and there is no reduction in the valuation of the property—that is what I want to know—does it even itself or not? Suppose there is a depreciation of 5% in the perishable property every year: That reduces the value to that extent?

A. You mean depreciation over the above maintenance?

Q. Yes, if it reduced it 5% would it be charged, or is it charged as an expense account and taken off net earnings?

A. It is not charged, but it should be.

Q. It is not charged and that is what I want to know. I understand it is not charged. Does that even itself with the other? On neither side is there a charge made.

A. If you are going to reduce the value of the property

526 5%, and consider there is a depreciation which has not been off-set by maintenance, you should be entitled to charge to your operation some amount to take care of that.

Q. Then if not charged——

A. Then if there is no depreciation or operating charge either one, it would even itself.

Mr. Hill: Take the life of a tie in Arkansas, eight or ten years, when that tie wears out its 100% ceases to be 100% and is nothing. Isn't that true?

A. Yes.

Q. And a new tie is put in there and charged to maintenance of way expenses?

A. Yes, sir.

Q. That goes into operation?

A. Yes, sir, that is all right. But the court is assuming there was depreciation.

Q. Well, isn't there depreciation on a tie?

A. That is an engineering question.

Q. You know the life of a tie is from 8 to 10 years, and after it is 4 years old hasn't half its life gone?

A. When you replace the tie, the operating expense accounts for that.

But if it be taken that the railroad plant as it stands today is not worth what it cost to put it there originally, then as a matter of logic there has been depreciation; and if there is a depreciation and it has not been made good through the channel of maintenance, certainly it should be charged to operating expenses.

527 You "write down" in your books the "property account", and you must do something to balance your books, and that charge must go into the maintenance.

Q. For the last ten years assume you have charged off the value one-tenth each year, and charged operating expense with that?

A. Yes, sir, and charge tie renewals, and when you put in a new tie you charge it against that; but your operating expenses would be charged with the amount that went to make that tie good.

Q. But with this tie you take a tie four years old and charge on the books at full value.

A. And if you take off 50% of the value you must charge operating expenses with 50% of the cost of renewal.

Mr. Moore: What would you say the synonym would be for depreciation?

A. I think the answer to that would be, depreciation means "deferred maintenance."

Mr. Hill: The Interstate Commerce Commission requires you to carry a depreciation account, doesn't it?

A. On equipment, yes.

Q. What rate does the Frisco charge off to depreciation?

A. The position of our chief mechanical official has been that we maintain our equipment, as I stated the other day, up to 100% standard. And Mr. Douglas, our chief accounting officer, has been charging to operating expenses and setting up on his books one-fourth of one per cent per annum—a purely nominal rate.

528 Q. On the theory that your equipment will last 400 years?

A. Yes. With a little more light on that: One of the carriers interpreted the instructions of the Interstate Commerce Commission literally. They said: "Charge — per cent on depreciation." And he followed the directions literally and in his depreciation account charged "— per cent" and he is in trouble with the Commission now.

Q. That was the Kansas City Southern, wasn't it?

A. The Commission laid down the principle and left the rate to the judgment of the carrier.

Q. Your judgment and your road's judgment is that your equipment will last 400 years?

A. No, sir. We claim that our equipment is kept up to standard until obsolescence overtakes it; and then we have been charging in our renewal account, as discussed recently in the case of our engines which we scrapped last spring. We do not depreciate our track, or anything but locomotives and cars.

At this point, by consent of counsel, adjournment was taken to Monday, June 29, 1914, the taking of evidence to be resumed on that date, at 2 o'clock P. M.

529 LITTLE ROCK, ARK., June 29, 1914.

Met pursuant to adjournment as above on Monday, June 29, 1914, at 2:30 o'clock P. M.

Present: Same parties as heretofore.

The following proceedings were had:

F. NAY, a witness of lawful age, being duly produced, sworn and examined, testified on behalf of the complainant, as follows:

Direct examination.

By Mr. Moore:

Q. Please state your name?
A. F. Nay.
Q. Where do you live?
A. Chicago, Illinois.
Q. What is your occupation?
A. Comptroller of the Chicago, Rock Island & Pacific Railway.
Q. How long have you been connected with that Company, in that capacity?
A. A little over eleven years with the Company, but not in that capacity.
Q. To go back a little, I wish you would state what experience you have had in connection with railroad accounting, and operation, if you have had any in that line.
A. I began railroad service in the Accounting Department of the Missouri Pacific Railway Company in April, 1883, as statistical clerk, and served in that capacity for one year.

I then went to the St. Louis Southwestern or "Cotton Belt"
530 in April, 1884, as statistical clerk, having charge of their statistics. I worked in that capacity for, well, I was statistical clerk and clerk of freight accounts and clerk of the "pool" accounts, in the old days of the "pools," until April, 1887.

From that time until January, 1889, I was traveling auditor for the lines of the Cotton Belt in Missouri, Arkansas and Louisiana, with headquarters at Pine Bluff and Camden.

From January, 1889, until April, 1899, I was chief clerk to the General Auditor of the Cotton Belt.

From April, 1899, until April, 1903, I was auditor of the Minneapolis & St. Louis Railroad; during the last year of that term auditor also of the Iowa Central Railroad.

From April, 1903, to the present time, with the Rock Island, as Assistant Comptroller, General Auditor and Comptroller, having held the last position since 1909, or nearly five years.

Q. Exhibit No. 1, filed by the complainant in this case, is a formula apportioning revenue and expenses of the property between

intrastate and interstate passengers and between intrastate and interstate freight: Are you familiar with that formula?

A. Yes, sir.

Q. Did you have any connection with its preparation?

A. Yes, sir.

Q. When was that formula prepared, Mr. Nay?

A. Covering a period from sometime about the middle of
531 July, 1913, up to the latter part of the year 1913, with some slight modifications since.

Q. I see the names of a number of operating and accounting officials of various railroads on the inside of the first sheet of that formula, and also the names at the bottom of the page, as having been members of the Committee taking part in its preparation: Did those gentlemen participate in the preparation of that formula?

A. Yes, sir.

Mr. Hill: I object to all these questions about how this formula was gotten up and who got it up. We are here to try out the formula, and we are not interested in the purposes nor the motives of the gentlemen in getting it up.

Mr. Moore: My object in asking that question is to show the care that has been taken in the preparation of this formula.

The Court: He may state whether it was prepared carefully and is accurate and correct.

Mr. Moore: That is my purpose and I think I have a right also to show that the men who prepared it were men of such experience as would qualify them to do work of that kind.

Q. Those men were all actively engaged in the service which is stated in connection with their names?

A. Yes, sir. This formula was prepared with the utmost
532 care, for the purpose of making an accurate separation of the operating expenses among the different classes of service that are shown herein, with the ultimate view of getting as accurate a division as possible between state and interstate, freight and passenger expenses, and without regard to what the final result was going to be. During this preparation I was asked by our attorneys what the outcome would be, and——

Mr. Hill: That is objected to.

Mr. Moore:

Q. Never mind that.

What were the underlying bases and the cardinal object in preparing this formula with reference to the method or theory upon which the apportionment should be made?

A. The underlying theory was to produce a formula that would comply with the requirements of the decision in the Minnesota Rate Case, which had upset our previous formulæ; and it was necessary then to provide something different, as our old formulæ had been discarded, and the basis of use was the basis for making these divisions, as that was emphasized throughout the decision I have referred to.

We attempted to make a separation just as accurately as possible, having in mind the use made of the property by the different classes of traffic.

Q. Will you state whether in your judgment the method of division followed in this exhibit, under this theory, does follow the use of the property in the apportionment of the operating ex-
533 penses. I want your judgment on that proposition, as a railroad accountant.

A. Yes, sir, it does, Judge Moore.

Of course there is this: Where the expense, as for example, the expense of a passenger train crew, can be assigned directly to passenger, we have the use and the expense directly connected. What I had reference to in the use basis is where in many cases it is necessary to make divisions of common expenses on some percentage basis. And in all these cases we have attempted to get bases which would produce the percentages that would represent the use of the property just as nearly as it was possible to do so.

Q. Taking up the formula now, I call your attention to page 3 which contains a statement of the scope and plan of division. After the apportionment of expenses as between states, the next item there provided for is the separation of the expenses in the state as between terminal or station and line or hauling expenses. Now, what was the object in adopting that theory of division, as one of your primary divisions?

A. The object of making the division between line and terminal was to overcome many of the criticisms of the old formulæ, as different formulæ had been used.

It was claimed and sustained that the terminal expenses had no relation to distance and, therefore, ton miles or passenger miles could not be used in a division of terminal expense between different classes of traffic.

534 On the other hand, there were the line or haulage expenses that had to do with both the distance and the quantity, making two distinct classes of expenses.

That idea had developed in different rate cases. I remember when I was on the stand in some case I was asked the relative amount of terminal, line or haulage expenses. But no detailed separation had been attempted. At least, I have never attempted one until this formula was prepared.

It seemed that in order to get at the cost of the different classes of traffic as accurately as possible, it would be necessary to make a division between the so-called "Terminal" expenses and the so-called "line" expenses.

Q. Those two divisions or classes of expenses cover all the expense incident to the transportation of persons and property—that haulage and terminal expense?

A. Yes, sir, except, Judge Moore, they were used as stepping stones.

Q. I do not mean in this formula, but I mean in relation to the cost of transporting freight and passengers.

A. Yes, that is right.

Q. That covers the entire range of expense, does it not?

A. Yes, sir, because all of the expense must have to do with either the terminal or with getting the freight or passenger over the line.

I was going to say, that in this formula we did not in every case, such, for instance as "loss and damage to freight," without
535 stopping to say whether that was line or terminal, we could from the nature of the claim determine whether the shipment that was damaged or lost was a state or an interstate shipment; so that was carried direct to the state or to the interstate columns. This division was a stepping stone, or one means of producing more accurate results.

Q. In classifying the various sorts of service as between line and terminal service, what was the principal and determining factor which influenced those who prepared this formula?

A. The terminal expenses were those that are in connection with originating the traffic and loading it, making the way-bills, and doing all of the work that is necessary to get the traffic on to the train at its originating points; and after it reached destination to unload it and make freight bills, collect the money, and all of the work that was necessary to the handling of the freight after it reached destination.

The line expenses were those in connection with the hauling of the freight or the passengers—the traffic, whatever it might be, after it was ready for shipment until it got to destination to be delivered.

Q. Does that also include the expense of getting the traffic ready for being loaded on the trains, ready for being hauled?

A. Yes, sir, the terminal expense does.

Q. It does not include the making up or the breaking up of the trains?

A. No, sir, not the terminal expense.

536 Q. In that connection state what considerations controlled in determining what would constitute "line" expense?

A. The line expense is all of the expense necessary to the actual movement of the traffic after it is ready to be moved until it reaches destination and is ready for delivery. And by destination or point of origin here, I have reference to the movement over the carrier's own line. That is to say, if any railroad—say railroad A receives a shipment from railroad B, at any station, it is considered in A's account as originating at that station just the same as if the shipment had been received from a shipper at that point.

That same theory prevails at destination, where a delivery may be made to a connecting carrier.

Of course, there were some expenses, like "general" expenses, which are not in direct relation to either terminal or line expense, but they were apportioned between the line and terminal in accordance with the provisions of the formula.

So when I said a while ago that all of the expenses were either line or terminal, I meant they were necessarily in connection with the line or with the terminal service, because that is all there is to transportation.

Q. That is the principle, so to speak, upon which you assigned the line and terminal expense?

A. Yes, sir.

Q. After assigning line and terminal cost what was the next step in this method?

537 A. The next step was to take the line expenses and divide them between freight and passenger traffic; and following that the terminal expenses and divided those between freight and passenger traffic.

Q. What was the controlling factor in making those divisions as between freight and passenger?

A. Well, the use that was made by the respective classes of traffic.

Q. Could it be allocated directly?

A. Yes, sir, quite a good deal of the expense could be allocated directly to freight or passenger traffic, especially of the terminal and a good many of the line.

Q. What was your principal guide in the division of that class of traffic which are common and could not be assigned directly as between freight and passenger?

A. Our aim was to divide those common expenses on some basis that would represent the use of the property by the kinds of traffic that was being apportioned.

Q. In order to do that you selected those factors which came the nearest to representing the actual use to which the property was put?

A. Yes, sir.

Q. And the allocation was thus arrived at?

A. Yes, sir.

Q. In that way the terminal expense and the line expense, respectively, after each of those classes had been ascertained, was apportioned as between freight and passenger traffic?

A. Yes, sir.

Q. What was the next step?

538 A. The next step was to take the line freight expenses and divide those between state and interstate traffic. Then line passenger expenses and divide those between state and interstate traffic. Then terminal freight between state and interstate; and terminal passenger between state and interstate.

It will help us see, Judge Moore, if we can keep those divisions straightened out. It has been hard work keeping even the members of the Committee from jumping from the division between terminal and line over to passenger and freight.

Q. I will come back to that in a moment. I want to get an outline of that.

In making the division between freight and passenger you spoke of a moment ago, what did you do with "mail and express?"

A. When we got the passenger proportion separated, we then set aside from the passenger expenses a car foot mile proportion, as representing the expense applicable to mail and express.

Q. Why did you adopt the car foot mile as a unit for making that division?

A. In my mind, there were two reasons: The first is, that it is

about the only common factor between mail, express and the other portions of the passenger service. And then the United States Post Office Department had adopted the basis in an investigation they made some years ago to determine the cost of carrying the
539 mail on trains. They went into the matter very thoroughly at that time, and the railroad companies all prepared data showing the car foot mile proportion. And my information is that that basis was pretty generally accepted, both by the United States Post Office Department and by the majority of the railroads, as being fair.

Q. Is there any unit that so nearly represents the use derived from those classes of traffic, mail and express, of the facilities furnished by the railroad company for transportation, as the car foot mile?

A. I know of no other unit.

Q. While we are on that subject, what did you do in that connection with the cost of hauling company and non-revenue producing traffic?

A. That was divided among the different classes of traffic on the basis of the amount charged to each class of service. That is to say, the total expense for the freight service was divided by the total tons one mile, to get the average cost per ton mile for all kinds of freight; which assumes that the cost per ton mile for company freight is substantially the same as that for commercial freight.

Then that cost per ton mile was multiplied by the tons one mile for company freight, and that was taken for the cost of transporting the company freight.

Then that cost was taken out of the freight columns and was reapportioned between all the classes of service on the basis of the amounts charged to the different classes of service.

540 Q. That *c*lass of service, hauling company material and non-revenue producing business, is considered as a burden on the transportation business of the Company?

A. Yes, sir.

Q. And is in fact a burden upon it, is it not?

A. Yes, sir, just as much as any other expense.

Q. And your purpose was to try to find some method of spreading that burden over the revenue producing business—the expenses, I mean?

A. Yes, sir, that is true. In our former statements that item of "company material" was overlooked. And especially the passenger business was unduly favored, because of the one big item of coal consumed by passenger locomotives, which was hauled in freight trains and the cost of transporting it had heretofore been charged to the freight train expense and had not been charged against the passenger train expense at all.

The Court:

Q. In this formula it is now charged to passenger?

A. Yes, sir, a proper proportion of it is charged to the passenger service.

Mr. Moore:

Q. Was this apportionment made with reference to the benefit that would accrue, we will say to the revenue producing business, say, for instance, the freight and passenger business, from the expenditure involved in the hauling of non-revenue producing material of the company, and handling company material. For
541 instance, you haul coal: That is used for both passenger and freight trains. You haul laborers, who are used for various purposes. What I want to know is, if the effect of this method of distributing the expense is to divide it in proportion to the benefit which accrues in the various branches of the service from this non-producing labor?

A. Yes, sir, that is true. It had reference to the purpose for which this company material was used. As, for example, the coal used in passenger locomotives, as I said a while ago, the cost of transporting that was formerly all charged to freight service. But now the cost of that used in passenger locomotives is substantially charged to passenger service.

The formula, as a matter of fact, considers the hauling of that company material and also the hauling of deadhead passengers on passenger trains, as a sort of "overhead" expense, like general expenses; and it is taken out from where directly charged and then spread over the entire service of the company; or, rather, over the item of operating expenses.

By that process we believe we have put it substantially where the material was used.

It was necessary to adopt some formula of that kind, because while the material is being transported it is impossible to tell the purpose for which it is going to be used. To illustrate, taking a car of coal which is being transported from the mines to the coal shutes, while that car is en route it is impossible to determine
542 whether it will be used in a freight engine or in a passenger engine, or a switch engine, or a work train engine.

And lumber which is being transported, is indefinite in the same way. We do not know the purpose for which it will be used; and, hence, it is necessary to make some apportionment similar to the one made in this formula. Exhibit No. 1, and we believe we have adopted in this formula a plan which will most nearly reach the right result.

Q. Mr. Nay, will you look at Exhibit No. 10 in this case, and state the manner in which that was prepared and explain that exhibit?

A. I have not looked this exhibit over very carefully before, and it may take me some little time. (After examining exhibit) I understand this is substantially the formula that is used here.

The terminal service for the revenue freight, which perhaps I did not make clear in my explanation, is taken out on the basis of the tons handled, and the passengers handled. And the line service on the basis of tons one mile and passengers one mile.

You have used net ton miles in accordance with the note at the bottom of the formula.

Q. The principle of the division I think is contained in the last paragraph on page 2, and the first paragraph on page 3 of the exhibit.

A. That reads as follows:

543 "It is not possible to determine upon any actual basis, how much of the non-revenue service performed by the freight service, is for the benefit of freight or passenger revenue service respectively; nor is it possible to determine actually how much of the non-revenue service performed by the passenger service is for the benefit of freight or passenger service respectively.

For this reason it is necessary to apportion the cost of non-revenue traffic upon some fair basis, between freight and passenger and line and terminal revenue service. It is believed that to each dollar, expended for direct cost of handling revenue traffic, freight and passenger and line and terminal, there should attach the same relative proportion of the expense of handling non-revenue traffic for the benefit of the revenue traffic. Consequently, the expense of handling non-revenue traffic, determined as hereinbefore set forth, was divided between freight and passenger line and terminal revenue service, on the basis of the direct cost of each such revenue service."

That is what I tried to explain a while ago. That is the necessity for making an apportionment of this kind.

Q. Having made these divisions between line and terminal service and freight and passenger, and ascertaining the cost of each of them, as divided between freight and passenger, and taking out the maintenance, what is the next step in that formula? What is the next apportionment?

A. The next apportionment is to divide these different results between state and interstate, mail and express being taken out of the passenger before a division is made between state and interstate; and that means that the four classes you then have, which are line freight and line passenger, terminal freight and terminal passenger, will each be divided into state and interstate expenses.

544 Q. This formula, beginning at page 8, provides the method of assigning expenses to states by primary accounts?

A. Yes, sir.

Q. Will you please explain the principle upon which that was done?

A. The principle of assigning expenses to states was, as far as possible to locate to the state of Arkansas, for instance, the expenses incurred within and in connection with the services in that state.

As, for example, the maintenance of way and structures, practically all of those expenses are located directly to the state. That is, the cost of ballast and ties and rails and labor, covering tracks and structures in the state of Arkansas, are assigned to the state of Arkansas.

There are some few items of supervisory expenses, stationary and printing, and other items, small in amount, which it is necessary to apportion.

But the underlying principle is to assign to the state of Arkansas

all expenses under maintenance of way and structures that are incurred within the state.

Under maintenance of equipment, the underlying idea is to assign to the state of Arkansas the expenses incurred in connection with the service in the state, or the use of the equipment made within the state. It is different, therefore, from maintenance of way and structures, because it frequently happens that the main shops for the repair of equipment are located without the state. I am not
545 familiar with that situation on the Frisco road, but on the Rock Island our main repair shops are located at Silvis, Illinois, and the work done at Silvis is done for the benefit of all the states. And it is necessary to apportion that between the states, and not apportion repairs on an engine made at that point, to the State of Illinois.

That runs all through these maintenance of equipment accounts. The assignment to states is made on the basis of the mileage of locomotives or passenger cars or freight cars, or of some unit that represents the service performed in the state, or the use made of the equipment in the state.

Then when you get to the traffic expenses, those referring to all of the states, the traffic representatives who are located within the state of Arkansas solicit and care for business that moves into, out of, and doubtless business that never touches the state of Arkansas. Likewise, those located outside the state do the same thing. So it is necessary to apportion the total of those expenses on the basis of tons one mile for freight, and passengers one mile for passengers, because they represent the volume of traffic moved.

Transportation expenses: The underlying principle in assigning those to the state of Arkansas is to assign to that state the expenses incurred in connection with the services in the state. That is, the station services, for stations located within the state, is assigned to Arkansas, and the train service in the state if assigned to Arkansas, and so on all the way through.

546 Where the service is in connection with two or more states an apportionment is made by the use of percentages based on units that will represent the service, or the use of the property, as nearly as possible.

Then when we come to "general expenses" they are in the nature of overhead expenses which apply to all the others and are spread over the other expenses on the well known accounting principle of having the overhead expense follow the direct expense.

Now, that is in general. There are some exceptions. For example, as I recall it, "telephone and telegraph operation," Account No. 94: In assigning among states this account is considered in the nature of a general overhead expense and apportioned among all of the accounts. But the principles I have given here are general. There may be some minor exceptions, but they are small.

Q. Why is that account 94, "Telephone and Telegraph Operation" divided on the basis indicated here?

A. Because it does not represent the movement of trains.

One of the big items of expense on the Rock Island is the telegraph

office in Chicago, where we have a lot of operators. They do a great deal of telegraphing for the general officials.

Telegraph service is really an overhead expense. It is impossible to locate the telegrams to any state. A telegram may be sent from Kansas to Oklahoma, that will refer to traffic in Arkansas;
547 or it might refer to traffic in all the states. It is not a very large item of expense.

Q. Does not that refer largely to the contents of the trains rather than the trains themselves?

A. Yes, sir, it does. And it deals very largely with the movements of the general officials.

Q. Unless there is something further you wish to say in that connection, I will now call your attention to another item.

A. I think that is all, in a general way. I have attempted merely to give underlying principles under these five headings.

Q. I wish you would turn to page 12 of the formula: That refers to the apportionment of expense between "line" and "terminal."

On that page, in connection with items 2 to 10, subdivision A, the train tracks are defined as consisting of main and passing tracks.

Immediately below, it is provided that the maintenance of that class of track is located direct to line and assigned to freight or passenger according to their use.

I want to ask you if you consider that a proper assignment of the maintenance of main and passing tracks, under maintenance of way and structure account?

A. Yes, sir, I do.

Q. Why do you consider that as a "line" expense?

A. Because the main and passing tracks are used almost
548 exclusively for line service. They are used for the getting of the trains over the line, for the hauling expense.

I have read the testimony of Mr. Hamilton, and I notice that exception is taken to that, because we have switch engines work on the main line in connection with switching service.

That is true, but that is a very small incident as compared with the entire haul of these trains between terminals, in the hauling expense.

And then, as an offset to that, I know it very frequently happens that a train in this line service, at the meeting point, instead of taking the siding on the passing track, will take the siding on a house track, if that track has room enough, or on an industry track. So there is an offset in service there.

As I say, the amount of use of the main line made by those switch engines in terminal service, is very, very small, compared with the entire use made of them by the trains.

In the beginning of this formula, we adopted a phrase in connection with the words, "exclusively"—"substantially exclusively." That is to say, a track must not be used exclusively for ten years in one particular branch of the service in order to be classed as line or terminal. There may be emergencies, or special cases in which it will be used to some extent in other classes of service; but where used substantially in one class of service it is fair to class the track in that service.

549 Now, these main and passing tracks are used substantially exclusively for the getting of trains over the line and hauling the traffic and, therefore, they are properly classed as "line."

The Court:

Q. Switching is done only at terminals? Is it ever done on these passing tracks, or on the road?

A. It would be only an emergency, where it was done on a passing track or along the road. But where a local freight train at a station sets out a car destined for that station, it makes some use of the passing track, putting that car in and then backing out again.

Q. But for the passing tracks at stations, they are not used for switching?

A. Not for terminal service, because that can be done only where there is a terminal to receive and deliver freight.

Mr. Moore: I will be glad to have you go through this formula, that is, through the principal items, and explain the "line" and "terminal" division.

A. You mean 2 to 10, we are just talking about?

Q. In connection with that I will call your attention to a division of group E, "engine houses, turntables, Wyes, fuel and water tracks." It is provided that "Tracks and their maintenance included under (*c*) are treated separately for each train terminal and apportioned to 'line' and 'terminal' on basis of assigned charges to accounts 72 and 81?"

A. Yes, sir.

Q. Explain why that is done.

550 A. I think that is a fair assignment. Of course, the item is relatively a small one, but the engine house expenses which are chargeable to Accounts 72 and 81, being apportioned between "line" and "terminal" on the time those engines were engaged in "line" and "terminal" services, means ultimately that the division of these maintenance expenses is also divided on the basis of the time the engines which used these facilities were engaged in line and terminal service.

Of course, I realize that assigned charges is not time. But when a wiper is wiping an engine that has been used in both line and terminal service, say it was used eight hours in line service and two hours in terminal service, one-fifth of that service is terminal and four-fifths is line. And if that is used as a factor for dividing the maintenance of those tracks, it means so far as that engine is concerned one-fifth of the maintenance of the tracks and structures would go to terminal and four-fifths to line. The wage feature really makes no difference because the man is getting the same pay while he is wiping the terminal part of the engine, so to speak, as while he is wiping the line portion. And while the boiler is being washed out, which is one of the principal expenses of round-house service, that washing is divided between line and terminal on the basis of the number of hours in each class of service. And if we divide the maintenance of these facilities, engine-houses, turntables, wyes and so on, used by that and other engines on the basis of the expense,

the result is to divide those maintenance expenses on the com-
551 bined time used in both line and terminal services. And I think it is a fair basis. It is as near the basis of use as we could could get, in connection with those expenses.

Q. Mr. Nay, this is a very important element I think in this scheme of division, this line and terminal, and I would like you to take sufficient time to explain pretty thoroughly the basis of that division in connection with those items here, that are of sufficient importance.

A. Take "B", station tracks, which are classed as "terminal:" We have there the same feature, that is, that the trains from time to time will occupy them in connection with the line service. I have seen it happen time and again that the passenger train, or freight train, if it is not too long, will take the siding on the side track which is classed here as a terminal track, instead of on the passing track——

Q. That, as I understand it, is located directly to terminal and assigned to freight?

A. Yes, sir, notwithstanding that sometimes a passenger train may make use of that track, but those tracks are, substantially, exclusively station terminal tracks.

The next section, "Yard tracks, consisting of classification tracks and storage tracks," are all classes as line.

Q. That is "C"?

A. That is "C". That kind of work, the classifying of cars to get them out on the line, or storing them while waiting for the full train, or purposes of that kind, is not in connection with the de-
552 livery or receipt of the cars, but is strictly a line service, and the maintenance of those tracks should be charged to line.

"Shop tracks" under section "D" are common. They are divided on the basis of the repair charges. Of course, that is a very small item and it would not make any difference where you put it; if you put it all line or all terminal, or all freight or all passenger, it would scarcely make any difference.

Q. You think they are properly divided on the basis of 25 to 34?

A. Yes, sir, because those shop tracks are used to switch in the equipment that is being repaired, and to switch it out, and to switch in material. They are used in connection with this equipment that is being repaired, and, therefore, the charges of the repairs as between line and terminal is a fair basis.

The rest of those items, accounts 11, 12 and 13, are small and are all located direct to line; they are all in connection with line service.

"Telegraph and telephone lines" is apportioned one-half to line and one-half to terminal.

Q. Why is that?

A. That is purely an arbitrary basis. To be frank with you, we just could not find any unit that would represent the use between line and terminal. As I said, it would be a herculean task to attempt to analyze telegrams. The Interstate Commerce Commission has ordered the division of certain expenses. Take the salaries of
553 officers who supervise two or more departments: The Commission has ordered us to divide their salaries equally between the departments supervised, regardless of the amount of items given

to each department, on the theory that the time of such officers is available equally for all the departments, and so these telegraph lines are available equally to line and terminal service. Therefore, I think that division is fair.

Q. There is no "Electric power transmission plant?"

A. No, sir.

Q. Take up "Buildings, fixtures and grounds:" I wish you would look at page 12-A.

A. Yes, sir. That is where the Frisco has made a slight modification. I have not read this before (indicating page 12-A of the formula).

Q. Take time and read it now before answering.

A. As I understand it, Judge Moore, this page 12-A is really not much of a departure from the formula. I think the formula adopted here is fair for the reason that it started with depots and station buildings occupied by employes whose duties involved both line and terminal, apportioned on the basis of the estimated occupancy——

Mr. Hill: I would like to ask a question to save time.

Mr. Moore: Let him finish his answer first.

Mr. Hill: I thought he had finished.

The Witness: I say, I notice that this has been determined by a study made of each individual station and not upon an
554 arbitrary space basis. I think that is an excellent way of making that division.

Mr. Hill:

Q. I just want you to explain what is included in that. You say "the division of expense of maintenance of depot buildings occupied by employes:" Do you mean you take in all the clerks, laborers and everybody who perform their duties there? I do not understand that and I am just asking that for information.

*Q.* That we do what?

Q. You refer to depots and station buildings occupied by employes.

A. The first paragraph, Judge Hill?

Q. Yes.

A. This is the separation between line and terminal——

Q. I understand.

A. (Continuing:) For example, if it is a station that handles both freight and passenger business, that part of the building which was used as the freight warehouse, and the freight platform, would be assigned to freight terminal, and that part which was used for the ticket office would be assigned to the passenger terminal; the waiting room would be assigned to the passenger terminal, and throughout the occupancy of the building, whether it is occupied in connection with freight terminal or passenger terminal—we are dividing here between line and terminal——

Q. Yes.

A. (Continuing:) All of that in connection with the sale of tickets, the receiving and delivering of freight, would be ter-
555 minal. There may be a transfer platform at a junction point where freight is transferred over the platform, a portion would

be assigned to line service on the basis of the judgment as to what portion of that platform should be assigned to line service as compared with terminal service.

Mr. Moore:

Q. In this case, and under this modification on page 12-A, that division was based on a time study of the various services to which those structures were devoted, was it not?

A. Yes, sir.

Q. That is what I wanted to find out.

A. Of course, that is just a slight modification from this formula. I am not entirely familiar with this, Judge Hill; I have not compiled the Frisco figures, you understand, but I assume that this takes into consideration the time that a platform might be used for terminal service and the time that a platform might be used for line service.

Q. That is an absolute allocation of the two kinds of service, is it not?

A. Well, it is an apportionment.

Q. Based on the time devoted to each purpose?

A. Yes, sir. Just a little further: I notice this—as I said, I have not read it before, I just got this formula with the modifications today—the formula has printed provisions for the division on a basis of occupancy. The Frisco seems to have gone a little further and used the time element as well as simply the space.

556 Q. That is, they have determined the occupancy by an actual ascertainment of the time it was used for each class of business?

A. Yes, sir, that appears to be the case here. It is simply a refinement of the formula, going a little further.

Q. It is a proper method, is it not?

A. Yes, sir, I think so.

Q. Now, take the item of the "Roadway tools and supplies."

A. The "roadway tools," divided on the basis of labor charges, is fair, because the tools are used by the laborers, and so far as the laborers are concerned, it is an overhead expense and should be assigned on the basis of the charge for laborers.

Q. That refers to the tools and supplies used in the maintenance of way and structures?

A. Yes, sir, every one of these accounts so far is under that heading.

Q. Turn next to page 13-A: You find there that that is divided, in the case of the Frisco, on accounts 2 to 17, inclusive.

A. Yes, sir.

Q. The effect of dividing it in accordance with those accounts (2 to 17) is that it is treated as an overhead expense?

A. Yes, sir; that is what I said a while ago, that as to those accounts, the roadway tools and supplies are an overhead expense. I have not made any computation, but I do not think it

557 would make much difference whether you included the material or left it out, because you are dividing now between line and terminal, and where the workmen are working line and terminal

it is quite fair to assume that the material would be in substantially the same proportion as the labor.

Q. In other words, the labor and material would be coincident?

A. To a great extent, yes, sir.

Q. Proceed now.

A. The item of "Injuries to persons" speaks for itself. I think that the basis is fair.

Q. That refers to employes engaged in the "maintenance of way and structures?"

A. Yes, sir. "Stationery and printing" and "Other expenses" are divided on the same basis as "Roadway tools and supplies." They are overhead expenses and it is proper to treat them in the same way.

The joint facilities covered by accounts 22 and 23 usually locate themselves to the state. I don't know whether the Frisco has any facilities that cross state lines or not.

Q. It has been assigned there to the state of Arkansas.

A. Yes, sir. This is line and terminal. That would be assigned according to the facility: If it was a yard it would be a terminal, and if it was the joint use of a track running across the state it would then be a line facility.

Q. The next primary account is "Maintenance of equipment."

A. Yes, sir. "Superintendence" is treated as an overhead
558 expense.

Q. That speaks for itself so we will not take any time on that. Take account 25, page 13, "Steam locomotive repairs."

A. That is divided on the time basis, between line and terminal, which has been referred to heretofore. I think it is all right.

The passenger train cars and freight train cars are divided on the basis of the opinion of a large number of the members of the General Managers' Association.

The rest of the items under that heading are really overhead expenses.

"Work equipment repairs" is an overhead expense, that is, it is really an overhead "Maintenance of way" expense, although it is classified by the Interstate Commerce Commission as "Maintenance of equipment." At one time the Interstate Commerce Commission had this work equipment under the "maintenance of way."

Judge Hill:

Q. Which account?

A. Accounts 43, 44 and 45, Judge Hill. They had those under "Maintenance of way" once, where I think they belong, but they have put them back.

"Work equipment" consists of tools on wheels.

The "Traffic expenses" have all been assigned to terminal.

Mr. Moore:

Q. Where are you now, Mr. Nay?

A. Near the bottom of page 14.

Q. Go ahead now with the next, "Transportation expenses,"
559 I presume.

A. I will be glad to be interrupted at any time, because I have no connected speech to make.

"Station employes" are assigned to line and terminal according to the duties performed, which is certainly a fair basis.

Q. One moment, please, before you go to that: I want you to go back to the primary account, the "'Traffic expenses" Accounts 53 to 60.

A. Yes, sir.

Q. It simply says, "Assign to 'terminal' exclusively."

A. Yes, sir.

Q. Please explain why that was assigned exclusively to the terminal.

A. Well, I think all the members of the Committee were of the opinion, and I am of the opinion, that this class of expenses is really in connection with getting the business to the point where it is ready for transportation; that is to say, the whole work of the traffic department is two-fold: One is the soliciting of the business and securing it; the other is printing the tariffs to be used, classifying the business, way-billing it, assessing the charges—all of the work that is performed by the station agents, and which is terminal service. The station agents themselves do a lot of soliciting and if a road should be deprived of its traffic department the soliciting would be done very largely by the station agents, if not entirely.

The work is so nearly allied to the terminal expense that it was classed as terminal, and, having little direct reference to the
560 line expense, we thought it more properly belonged under terminal than under line.

Q. You began to take up a moment ago "Transportation expenses": Take that up again, please. I think you began on "Station employes."

A. Yes, sir; I spoke of that being assigned according to the duties performed, and there certainly could be no better basis than that.

Q. That is a matter that was determined by a time study of the different classes of duties discharged by the employes?

A. Yes, sir. One of the exhibits here shows a report made by the agents giving the nature of the duties performed by each employe.

No. 64 "Weighing and car service associations. Assign exclusively to 'terminal.'"

"Station supplies and expenses" are divided on the basis of the employes who use the supplies.

Then the yard service accounts, from 67 to 78, inclusive, are divided on the basis of the time at all of the yards combined.

Q. That is the time devoted to line and terminal in each of these classes?

A. To line and terminal—a switch engine that takes hold of a train to break it up in a yard or re-classify the cars to send them out, some of them over a branch line and some farther on on the

main line. That is purely line; it has nothing to do with the
561 freight originating and terminating at that station, and should be, and is, treated as line service on the basis of the time consumed.

If that same engine takes some cars and places them at different industries to be unloaded, or places empty cars to be loaded, that is a terminal service and is so classified, according to the time engaged in that kind of service. So on all the way through, the expense is divided on the basis of the time devoted to each class of business.

Accounts 79 to 89, which embrace the engine and train expenses, are also divided on the basis of the time, to the two classes of service, line and terminal.

Q. In connection with this group comprising Accounts 79 to 89, inclusive, in the trial of the Iron Mountain and Cotton Belt cases there was a good deal of difficulty in trying to make a proper assignment of the expense of the extra cost of switching that was attached to local trains——

A. Yes, sir, I recall that.

Q. —that finally had to be ascertained from an arbitrary assumption. I want to know if the method of division of these items here do or do not take care of that and account for it on the basis of an ascertainment of the time and labor actually incident to that extra switching of local trains, or any other class of trains, local or through.

A. This formula does take care of that very thing that the additional miles were added on to cover, because if a local train——

Q. I wish you would give a pretty full explanation of that.

562 A. If a local train stops at a station and switches cars, we will say where there is a lumber mill, and it is necessary to set out several empty cars and spot them at different points; then pick up other cars that are loaded and ready to go, the train may spend an hour at such a station switching on purely terminal service. Under this formula the time of that crew for that hour is charged to terminal expenses and not to line.

On the other hand, if the train stops to take coal or water, both of which are in connection with line service, that time is charged to line; but the addition of 50% to the local mileage, which I think was made in the other cases referred to, was to cover the time that I have indicated in the illustration of switching cars to this lumber mill.

This formula takes care of the actual time engaged in terminal service at stations and makes it unnecessary to make any arbitrary addition whatever to the train miles to cover such service.

Q. Does it not assign that class of expense in accordance with the use that was actually made of the facilities in that service?

A. Yes, sir, it does, because during that hour this engine and the train crew are assigned to the terminal service.

Q. You have covered the account of the division of expense of "Telegraph and telephone operation" in connection with the "maintenance of way and structures?"

A. Yes, sir, I mentioned that a while ago.

Q. I see it appears again under the head of "Transporta-
563 tion expenses."

A. I mentioned it awhile ago in connection with the general heading of "Transportation expenses," saying this was one of the exceptions and treated the same as a general expense.

Q. No. 97 is the next.

A. "Stationery and printing," yes, sir.

Q. Pass that "Stationery and printing", we all understand that. I want to direct your attention now to "Loss and damage, freight" and "Loss and damage, baggage:" What have you to say about those—they are No. 99 and 100 on page 16, in the "Transportation expenses."

A. Those almost explain themselves. I think the method used here is fair; that is, in order to get it separated between state and interstate it was not necessary to divide between line and terminal, but in order to get the complete cost per ton mile and per passenger mile, for line and terminal service, separately, it was necessary to divide it after it had been located between state and interstate.

Q. Is the method pursued there an actual location?

A. Oh, yes, sir, that is an actual location. There could not be anything better than that; that is absolutely right.

Q. Go next to the "General expenses" and see if there is anything there to explain.

A. As I said before, those are all treated as an overhead
564 expense, with the exception of insurance, and the formula provides for that being divided on the appropriate units of property or persons insured; that is to say, if we were insuring property that is assigned to terminal service, the premium for that insurance would be charged to the terminal expense, which is fair and is in line with what was done in connection with the maintenance of the property.

It will be noted that in the "Maintenance of way and structures" that is the fixed property that does not move; the assignment between line and terminal has been entirely with regard to the use of that property. Then when you get to the "transportation" the moving expense, the time has been the principal element all the way through, the time that was used in line or terminal service, as the basis for separation.

Q. I believe you have now gone over the principal items of division as between line and terminal?

A. Yes, sir.

Q. The next matter that was taken up was the apportionment of the expenses assigned to line between freight and passenger: Just follow that beginning on page 17, if you will, with regard to the division that has been made between those two accounts, freight and passenger.

A. The first division that we come to there that seems to me requires consideration, is the division of accounts 2 to 10, inclusive, which are the principal "Maintenance of way and structures" accounts. It is where most of the money goes. These accounts refer

to line expense—the maintenance of those main and passing
565 tracks, and a few other expenses in connection with the line service.

This division is made between freight and passenger on an engine ton mile basis, which I think is a fair basis.

We had a great deal of discussion as to the best basis to adopt in connection with this division; in fact, I presume that that part of this formula was given more attention than any other part. A study was made of the engines used in freight and passenger service, and it was found that the passenger engines which hauled trains at a high rate of speed were practically of the same weight as the large freight engines which moved slower but pulled heavy trains. In some cases the passenger engines of those high speed trains are heavier. We found in studying the situation that the weight of the engine really represented the service performed as to weight and speed.

In the old formula it was urged many times that speed was not considered. The argument for using the train mile basis was that the extra speed of the passenger train offset the greater weight of the freight train.

Q. Under the old method?

A. Under the old method, but, as I say, in studying the conditions we found that the weight of the engines actually did reflect the speed, in the case of the passenger engine, and in the case of the freight engine the weight which was pulled, and also the speed; that is, for greater speed and heavier weight you must have
566 a heavier engine; for slower speed and a lighter train you must have a lighter engine. Then again, when it comes to that portion of your expenses—the ties, rails, track material and ballast, to a certain extent the heavier the engine the greater the damage done to the track, so that the weight there is an important factor.

We frequently strengthen bridges, put in heavier rail and additional ballast because of heavier engines put on, not because of heavier cars.

Taking all those things into consideration, we decided that the engine ton mile basis was the best basis that we could get which would represent the use, and by use combining speed as an element of use with weight and the distance traveled. Hence, the Committee which framed this formula decided on the engine ton mile basis and it has been used.

Personally, I have made a comparison of the engine ton mile basis with the train mileage, and it does not assign as much to the passenger, in the cases where I have made the comparison, as the train mile basis assigned.

Q. The next item of importance that I see there is No. 16 "Building, fixtures and grounds:" That is a matter of considerable importance, is it not?

A. There seems to be a note about that here (indicating on formula); well, that is particularly about the eating houses.

Q. We will pass that.

A. I think the formula speaks for itself on that account.

567 Q. Then we will not take any time on that. Item 19 relates to "Injuries to persons:" What character of injuries does that refer to?

A. This refers to persons who are injured in connection with work on the "Maintenance of way and structures."

Q. Employes or outside parties?

A. It would be practically all employes. A man might be injured by a pile driver or be hit with a spike maul, or in various ways in connection with the maintenance of way and structure work.

Q. That provides for the expenses incident to accounts 2 to 17?

A. Yes, sir, treats it as overhead expenses.

Q. We will go now to "Maintenance of equipment," item 25, page 18, referring to locomotive repairs.

A. The formula is very plain as to that and it is down to as fine a point as the Committee knew how to make it, and that is, to take each locomotive separately. Of course, there were some of the roads which participated in this formula (the Rock Island was one) that did not have the running repairs separated by each locomotive, and they approximated it very closely by a method we provided.

Q. That provides for dividing it automatically, does it not?

A. By individual locomotives, that is, take locomotive 1367, and take the general repairs or shop repairs—"classified repairs" they are sometimes called: the last time it was in the shop, we will say, was eighteen months ago, and it goes into the shop this month.

568 The expense of the repairs is $2,400. We get the mileage of that locomotive from eighteen months ago up to today, and if we find that 40% of that mileage was in passenger and 60% in freight, we divide this $2,400 40% passenger and 60% to freight.

Q. That mileage represents the use of those locomotives, does it not?

A. Yes, sir, absolutely.

Q. And, therefore, apportions the expense with reference to that use?

A. Yes, sir.

Q. With the idea that the repairs needed are in proportion to the use that is made of it?

A. Yes, sir. The freight cars divide themselves automatically; freight cars go to freight and passenger cars to passenger.

The "work equipment," "shop machinery and tools," and "other expenses" are all treated as overhead expenses, which is a well known accounting principle mentioned heretofore.

Q. Go on with the next item that needs explanation.

A. "Transportation expenses" will be the next. The "superintendence" is treated as an overhead expense.

Q. We understand about that.

A. I am afraid I take up too much time. Having gone over these things so often they seem very plain to me.

"Dispatching trains" is apportioned on the train mileage, freight and passenger trains, in their territorial units; that is, the train district over which the dispatcher has jurisdiction.

569 Q. The train dispatcher is apportioned on the basis of train mileage with reference to the duties he discharges?

A. Yes, sir, he may have charge of 100 miles or 200 miles, and it is divided on the territory he has jurisdiction over, the "territorial units as expressed here in the formula.

The "station employes"——

Q. I do not think it is necessary to explain that.

A. That is the same study that has been referred to heretofore.

Q. Mr. Nay, I don't want to take up any time unnecessarily, so I am going to ask you now to refer to such matters as you think should be explained, without my asking you any more questions about it; at the same time, I want you to take all the time that is necessary to read whatever parts you wish and explain them as fully as necessary.

A. "Fuel" is one of the big items—fuel and water. That is apportioned on the basis of use, that is, on the locomotives to which it is furnished, between freight and passenger; and fuel furnished to engines pulling mixed trains is divided on the basis of the gross ton miles of those trains.

Q. It has been explained that that is actual on the Frisco road.

A. Yes, sir. The rest of the items are not very large—loss and damage to freight goes direct to freight, and damage to baggage, to passenger.

"Stationery and printing" and "other expenses" go as overhead expense.

570 When you come down to "General expenses" they are treated as overhead expense, with the exception of insurance, which is divided in accordance with the property that is insured; that is, if it is passenger equipment the insurance would be charged to passenger, and freight equipment to freight, and so on.

The Court (to Mr. Hamilton): Is there any charge for insurance in any of these exhibits of yours?

Mr Hamilton: Yes, sir, all the way through.

Mr. Moore: I would like to have Mr. Hamilton explain that.

Mr. Hamilton: It is rather an intricate matter on the Frisco. There are a number of kinds of insurance that we have, and, as Mr. Nay has just explained, the insurance of our own physical property attaches itself to that property; the insurance of passenger cars to passenger, and freight cars to freight. We have another item of insurance, which is insurance on freight-in-transit. That has been attached to the freight service and included in that. We have special insurance on cotton while it is in our cars; we have charged that in these exhibits to our cotton traffic, in the interstate. Casualty insurance has followed the basis of the "injuries to persons" account in the various items where we have them, because it is a safeguard against those injuries.

That is the general scheme.

Mr. Moore (to the Witness): You think that about covers that?

571 A. Yes, sir, because when you get to the apportionment between freight and passenger you have had some use basis all the way through. The passenger station which I mentioned a minute ago would be an illustration; the maintenance of

that building would be charged to passenger, and the maintenance of the freight building, or freight platform, would be charged to freight. The maintenance of all the industry tracks that are used exclusively for freight would be charged to freight, and so on all the way through.

Where the property is used in common the apportionment is made on some basis that represents the relative use as nearly as possible.

What has been said of *ch* line and terminal freight would also be true of the line and terminal passenger, so far as the principles are concerned; of course, I could go through the detail of this formula and explain each account, but Mr. Hamilton has done that very th-roughly. I have read his testimony and think he has given a very complete explanation, so it seems superfluous for me to go over it again, unless there is some individual account you would like to ask me about.

Q. In that connection I want to call your attention to Exhibit- No. 2-A to 2-K. Turn to Exhibits 2-H, 2-I and 2-K.

A. Yes, sir, I have them. There is also 2-J in there, and 2-K.

Q. Exhibit 2-H is a time study of the train: Will you state if it is feasible and practical to have train men make that kind of a study and analysis of the different kinds of service rendered, or,
572 rather, the service rendered to the different classes of trains? You will find instructions on the back there telling how it is to be done.

A. Well, as to its being feasible and practicable, we have done it. We had a similar report——

Q. Is that done on the Rock Island line?

A. Yes, sir; in fact, when we began to make this study we found that a report somewhat similar to this had been regularly used by our operating department.

Mr. Hill:

Q. This exhibit that you have is No. 2-H?

A. Exhibit No. 2-H, yes, sir. That covers delays and analyzes the time in getting over the road, in order to promote more efficient operation.

Mr. Moore:

Q. Do all railroads use that trip report you speak of?

A. It is a report of the train stops and terminal delays; it is not the trip report.

Q. I mean the one that you referred to your road as using.

A. No, sir; this report that I referred to the Rock Island using is a special report outside of the regular trip report showing the delays.

Q. Take up that Exhibit No. 2-H: That gives the performance of trains, so far as necessary for the purpose of making the proper assignment between these two divisions, line and terminal, does it not?

A. Yes, sir; that is, all the delays. It shows the station where the delay occurred and how the time was employed: whether the
573 stop was on account of train operation, waiting for another train at a given point, for taking coal or water, or whether it was on account of station service, which would be terminal service.

Q. Is that an efficient analysis of the work performed by the train, to enable the proper assignment against that train, between these divisions?

A. Yes, sir, because you are seeking to divide those two classes of service here, the line and the terminal, and, of course, we want only the two divisions. There are instructions on the back of the blank, to the conductors, as to how to assign that matter under the two divisions.

Q. The next item I want to call your attention to is Exhibit No. 2-I, the yard engine foreman's report: Take that up and explain how that is done.

A. That shows in half hour periods how the time was employed; whether it was employed in making up and breaking up trains, handling cars for icing, handling cars for loading and unloading at stations, switching cars to and from connecting lines, and so on through the different classes of service as shown by the report itself, that was performed by this switching crew in half hour periods.

Q. This report is made by the yard engine foreman?

A. Yes, sir.

Q. And he designates the character of work done with the engine by the switching crew?

A. Yes, sir, that is, by the foreman of the switching crew.
574 Some roads call them conductors. They correspond to a conductor on the trains of some lines.

Q. That report shows on the face of it the kind of service rendered, line or terminal?

A. Yes, sir.

Q. Turn to Exhibit 2-K.

A. Yes, sir, I have it.

Q. That is a report of the division of station expenses and station tonnage: Explain that, Mr. Nay, and also state if you have had any experience or discussion of those accounts to enable you to say whether it is feasible to divide this character of expense between line and terminal, upon the information contained in this sheet.

A. In connection with preparing the data for the Oklahoma Rate Case, based on this same formula, we used a blank quite similar to this: in fact, it looks a good deal like the Rock Island blank if the heading was different. We sent them out to the agents to have them show in these various columns the distribution of the wages of the different employes; that is, if the way-bill clerk devoted his whole time to billing freight it was classified in the freight column. The ticket clerk would be classified in the passenger column.

In the case of a one man station he was to separate his time, as he knows better than anybody else what he is doing. This blank applies to the apportionment of this expense the same principle that has been used in shops and factories of having each man take a work
card and report on that card what he has been doing. That
575 card is sent into the office and is filed along with other cards which show the expense of the different classes of work. Then the agent shows down below here the tons of less-than-carload freight received and forwarded and transferred, and various statistical in-

formation that is needed to make a division, further than he is able to give on this distribution at the top.

Q. That is between state and interstate, is it?

A. That is state and interstate, and company material, too. Of course, he does not know anything about his time between state and interstate freight, but he can tell you how much time he devotes to freight service, how much to passenger service, to telegraph, to mail and express, and so on.

Q. Does he tell how many tons of state and interstate he has handled?

A. Yes, he tells how many tons, and then the freight proportion of the expense is divided on the basis of the number of tons; for the warehouse expense, on the carload basis, and for the total expense on the basis of carload and less-than-carload. If there is switching it is on the basis of the carload freight.

At this point adjournment was had until Tuesday, June 30, 1914, at 9:30 o'clock in the forenoon.

576 LITTLE ROCK, ARK., June 30, 1914.

Met pursuant to adjournment as above on Tuesday, June 30, 1914, at 9:30 o'clock in the forenoon.

Present: Same parties as heretofore.

The following proceedings were had:

Direct examination of Mr. F. Nay continued.

By Mr. Moore:

Q. Mr. Nay, what is your opinion of the soundness of the gross ton mile division of expenses between local and through freight trains?

A. I think it is a fair and sound basis, because those two classes of trains run at practically the same rate of speed, so the speed need not be taken into consideration. And, further, there is a division of train expenses which does not need to consider the speed, and the gross ton mile is a fair basis of division.

Q. And what is your view of the gross ton mile division as between freight and passenger, on those trains?

A. Just the same. The proportion of freight and passenger trains move at exactly the same rate of speed and the division is fair there.

Q. I wish you would turn to page 25 of Exhibit No. 1, the formula in this case, and take up the subject of the division of line passenger expenses between intrastate and interstate, in the primary accounts; and give us your views as to the soundness of the methods adopted in making those divisions.

577 A. I think the methods are sound and fair.

Throughout this section of the formula the principle is carried of eliminating from the line passenger expenses the mail and express expenses, on the basis of car foot miles devoted to mail and express service, as compared with the total car foot miles of the trains. And then the remainder, which represents the strictly pas-

senger expense, exclusive of the expense of mail and express, is subdivided on a car foot mile basis between sleeping cars, day cars or coaches, and other cars.

The expenses, then, which apply to the sleeping cars are divided between state and interstate on the basis of passengers one mile in the sleeping cars; and those pertaining to the day cars on the basis of passengers in the day cars one mile; and those pertaining to the other cars, such as dining cars, baggage cars, and so one, which serve all the passengers in the sleeping cars and day cars, are divided, on the basis of the total passengers on the train, between state and interstate. This division all the way through in this section being between state and interstate and applying only to line passenger expenses.

I think that principle goes all the way through, clear to the end of "General expenses" Account 113½.

Q. You are referring particularly, then, to Accounts 1 to 23, pertaining to maintenance of way and structures?

A. Yes, sir, but the same thing, almost, appears all the
578 way through under, for example, "Maintenance of equipment", "Work equipment", "Train and engine expenses;" almost the same thing follows, and the principle is identical.

The principle is, that we segregate the mail and express expense on a car foot mile basis, which has been approved by the Post Office Department in connection with the determining expense of mail service by railroads, and that basis has been approved, so far as I know, by most of the railroads in that case.

And then when those expenses, which have nothing to do with the transportation of passengers strictly, is eliminated, we have then left the expenses pertaining to the passengers, which is divided, as I have said, on the principle that those on the sleeping cars are separated and the service pertaining to them divided on the basis of passengers occupying sleeping cars; and those in the day coaches on the basis of the passengers occupying the day coaches; and those that are common to all of the passengers.

Q. Will you turn next to page 28 and take up the apportionment of "line freight" between intrastate and interstate? I will call your attention in that connection to page 28-A.

A. Yes, sir. I have read that. The Frisco, in this case, has gone a little further than the printed formula provides.

I suppose it goes without saying that in a committee not all of them were exactly of the same mind on everything. Some
579 thought that some of these accounts should be carried to a greater refinement.

The Frisco in this case, has carried the "line" freight expenses through to a conclusion as between local and through trains and then have divided the expenses so subdivided, between local and through trains on the basis of the net ton miles in the respective trains, as between state and interstate.

That is the underlying principle all the way through, just as they had one principle which went through the division of "line passenger" expenses. There it was separated between sleeping cars,

day coaches and other cars, mail and express. Here the separation is between local freight and through freight; and practically the same principle that was applied to the "passenger" is here applied, except that in the passenger it was applied to different sections of the trains, and in this case it is applied to different classes of trains, the local and the through.

I think that gives the principles, Judge Moore, and I think they are right. I think they are such as will produce the right conclusions, and get away from the increased cost percentage we used to have.

Of course, there is an exception there which runs through both of these accounts, and that is the "Telegraph and telephone operation" which I mentioned yesterday; and it might be well to call attention to it once more.

580 That expense is treated as an overhead expense like "General expenses" and instead of making an attempt to separate it between through and local train service it is apportioned to all of the accounts on the basis of the direct expenses.

I say "all the accounts": In this particular formula it is apportioned between intrastate and interstate; but in the different sections it is apportioned to other accounts just like general expenses, as an overhead expense, which it really is.

Q. I will ask you to turn next to page 31 and take up the apportionment of the terminal passenger expense between intrastate and interstate.

A. I think the principal item of expenses under "Maintenance of way and structures" is "Building, fixtures and grounds."

There is no charge to terminal passenger expense on accounts 2 to 13, which are the principal maintenance of way accounts. Those accounts will embrace ordinarily 60 to 70 per cent of the total maintenance of way expenses and no charge is made to the terminal passenger for that class of track expense, including bridges and crossings.

But when we come to buildings we then reach the section that embraces passenger terminal expense.

Q. One moment before you come to that. There is no charge made for certain fixtures, etc.

A. Not to the terminal passenger expense.

Q. Why is that not done?

581 A. The tracks, so far as the passengers are concerned, are all in connection with getting the passengers over the road. The passenger is not loaded on a team track like freight; or in a freight house. He boards the train himself and all he needs is a station and a platform. He does not need any tracks in order to board or alight from the train. So all the expense in connection with these tracks, whether side tracks or main tracks, so far as they are used by the passenger and that expense is concerned, is a line expense and it is so treated in this formula.

Q. Now proceed with "Maintenance of equipment" that you referred to a moment ago.

A. The division, however, of the "Buildings, fixtures and grounds"

expense, that I was about to speak of, is on the basis of the passengers, state and interstate, using those buildings. That seems to be entirely fair and sound and is again adopting the basis of use as the basis for the division of the expense.

The other expenses under "Maintenance of way and structures" are very small for terminal, and I think the formula there speaks for itself.

The same theory runs all through the division of the passenger terminal expense; that is, after segregating mail and express, the passenger proportion is divided on the basis of the passengers using the facilities. Not the passengers one mile here, because there are terminal expenses and the passenger who travels ten miles
582 makes substantially the same use of the terminal as the passenger who travels 100 miles. The basis of the number of passengers getting on or off the train and using the station or other facilities, I think is the proper basis for division. I think the formula speaks for itself. That same principle is used all the way through.

Under "Superintendence" I notice that Frisco makes an exception nearly throughout the formula, by eliminating Accounts 77 and 78. Those are the two joint facility accounts under "yard" service.

Q. What item is that?

A. That is "Superintendence" account No. 61.

It just comes to my attention here by the typewritten matter on page 32-A, where attention is called to the fact that those two accounts were excluded, and the reason therefor is given.

Yesterday in stating when this formula was compiled, I said it was commenced sometime in July, 1913, and running through to the latter part of 1913, and some slight modifications since: This is one of the slight modifications. The net result will be practically the same whether you include or leave out those two items. Personally, I think the formula is right in omitting them.

The Court: The reason he gives is that they are contained in the vouchers of the company.

A. Yes, your Honor, and the reason is good.

Q. Hence, there is no necessity for including them?

A. Yes, sir, that is it. There is no necessity for in-
583 cluding them.

Q. Now, when we come down to the other terminal passenger expenses, the basis is the same; they are divided on the basis of the passengers using the station. I think that basis is sound. One passenger may sometimes make a greater use of the station than another passenger, yet on the average they will use them practically the same.

Mr. Moore:

Q. Will you now go to the apportionment of terminal freight between interstate and intrastate? I think you will find that on page 34.

A. Here the basis throughout is to divide these terminal freight

expenses on the basis of the tons, in some cases net and in some cases gross tons, that use the terminal facilities.

Take accounts 2 to 10, which are the tracks and which are used by the cars containing the freight; that apportionment between intrastate and interstate is on the basis of gross tons of loaded cars handled on those tracks. And it seems to me no fairer basis could be used.

When we come to "Buildings, platforms," where the less-than-carload freight is handled, the division is on the basis of the net tons; so all the way through this division. The apportionment between intrastate and interstate is on the basis of the tons that use the facilities—or on the use basis.

Of course, there are certain accounts in here like "superintendence" again, that are overhead expenses and are divided on
584 the basis of other accounts. But still that is just the same as the use basis. They are divided on the basis of direct expenses, the latter having been apportioned on the use basis. That runs all the way through this section of the formula.

Q. And what you said covers "Maintenance of equipment" as well?

A. Yes, sir.

Q. On page 35, the "Transportation expenses" are treated. The word "consignments" is used in some instances there, is it not? Such as in "Station employes," Account No. 63.

A. Yes, sir. I forgot to mention that. The expenses of employes in the station are divided on the basis of the number of consignments—that is, the number of shipments—which is an entirely proper basis because it very frequently happens that one way-bill—a so-called "blanket" way-bill will cover a number of shipments or consignments, and there will be practically the same amount of work in connection with each consignment as if separate way-bills had been made for each consignment. In fact, there are some railroads in the east and southeast which are making a separate way-bill for each consignment. The division on those roads would be on the basis of the number of way-bills.

Q. To what class of employes does that refer?

A. That refers to clerical expense, the clerks or the man who makes the way-bills, and records them at destination. A separate freight bill must be made for each consignment. A blanket
585 way-bill may cover fifteen consignments, consigned to fifteen different firms or persons in a city; and a separate freight bill must be made for each one, notwithstanding the fact that that was all covered by one way-bill and all moved in one car.

Another item I should have mentioned, that is not apportioned on the basis of the tons, is the "terminal yard" expense. That is based on the respective number of state and interstate cars of freight received and forwarded. And the cars that contain both state and interstate freight are counted one-half a car to each class.

This is on the theory that it costs substantially the same for terminal service for all of the state cars—that is, the same average for all of the state cars and for all of the interstate cars, regardless of the

fact that one may contain forty tons of freight and the other five tons of freight.

This refers only to the "yard" expenses, the switching and placing of cars.

Q. There are different classes of employes, or rather employes who discharge each class of service in the station and terminals?

A. Yes, sir.

Q. Their expense, I suppose, is assigned in accordance with the class of service rendered?

A. Yes, sir. For example, if there is a station where the agent is also a ticket agent, he has a ticket clerk or ticket seller, the wages of that ticket clerk would be assigned to "passenger" and "pas-
586 senger terminal." Then the wages would be assigned between intrastate and interstate according to the number of passengers at that station.

And if he were a way-bill clerk, it would be assigned to "freight" or to "terminal freight expenses" and be divided on the basis of the number of consignments handled at that station.

So, all the way through, each employe is assigned to the character of service he performs—or, assigned to the expense incurred by the service he performs.

Q. The difference in the method you have just described, and that pursued by the state in preparing its exhibits in the Iron Mountain Case, is that all expenses were lumped without discrimination and then divided on a tonnage basis, is it not?

A. Yes, sir. And I have been impressed with the fact that those men had the same end in view that we have in this new formula, except they attempted to reach that end by arbitrarily adding to the mileage 50% to local mileage and switching, counting engine equipment as 2½ cars, to equate their factors, etc. While in this formula we have attempted to go right to the expense, without any equation of factors, and get at the actual expenses just as nearly as it was possible to do so.

Q. This formula is based on the detailed analysis of the different classes of service rendered and the expense incident to that class?

A. Yes, sir, it is.

Q. And that was lacking in the other method?

587 A. Yes, sir. This is a very expensive formula to prepare and it may be that the expense deterred all of us from going into the detailed analysis as we have done in this instance.

And then, there is another feature. In this formula the statistics that were necessary for making the apportionment have been gathered currently as the business was going on. It was impossible to gather those statistics on past business; that is, it is impossible for us now to go back to 1912 and gather statistics similar to these covered in November and December, 1913, because the records do not disclose the different details.

It is necessary to organize your force and tabulate these figures currently as the business is moving. And unless the statistics were kept in such elaborate detail all the time the expense of which would make

it prohibitive, it would be impossible to go back and compile the data for any prior period.

By the Court:

Q. Do you know whether the railroads keep a record of certain months in the year, for the purpose of ascertaining those things?

A. Not currently. I do not know of any railroad that does so. It is only when a case comes up and necessity demands it. We are held down to the grindstone pretty closely on expenses, your Honor.

By Mr. Moore:

Q. It is a very expensive thing to do?

A. Yes, sir, it is.

588 Q. Has there been any attempt to apportion railroad operating cost on the basis of use made of the property and facilities, before the formula we are using in this case was adopted?

A. On the part of the railroad, I know of only one case, and that was the Louisville & Nashville in the Alabama Rate Case. They did atempt to make a separation of "haulage" and "non-haulage" expenses. I had all their exhibits and their formula. But they based their apportionments, where they had to make apportionments, on the basis of one week, which the Court determined was too short a period. And then they did not go into the minutiae of details that we have in this formula. Of course, as I have said before, outside of the railroads I think the state had the same idea. I admit that candidly on the stand, although I was an advocate of the revenue basis at that time.

Q. On the basis previously used by the railroad, except perhaps in the Alabama case, for that purpose records and accounts would disclose the ratio of expense to earnings on which was assumed to be extra allowance of cost for intrastate business, did they not,

A. Yes, sir, but, of course, in this formula—I think I know what you mean—if you figure it out on the revenue basis with 25% increased cost, if that did not prove your case you could make it 50% or 75%. Is that what you had reference to?

Q. Yes.

589 A. That is what I have in mind in my answer, although I do not know of any railroad that actually did that. It was possible to do it.

In this formula we have now no such thing is possible, because we did not know and could not know when we were working up these statistics where they would land us.

The Court: You do not mean statistics, you mean rules?

A. Yes, and even those statistics.

Q. But you did not have statistics before you when you formulated this, did you?

A. You are right, your Honor. We did not have the statistics before us when we prepared the formula.

I said to some friends of mine that it might prove that the two cent passenger rate is compensatory. But we said, if that is true we should know it.

Further than that, when we had the men gathering these figures, after the formula was completed, even then we did not know what the result was going to be. But we did make an honest effort to get at the facts as near as possible and let the result be what it would.

Mr. Moore:

Q. Under the formula used in this case, is the extra cost of the intrastate freight business a matter of expert opinion, as it was under the old revenue and ton mile basis of apportionment?

A. It is not.

Q. Explain that, please.

590 A. Under the old basis it was necessary to have some operating men of experience, who knew the cost of the different kinds of business, testify as to the percentage of increased cost of one class of business over another. And then we would take that percentage and apply it to the figures.

In this case we have consulted no operating men as to the increased cost of doing intrastate business over interstate, or local business over through, or any one class over another.

We have made an honest effort to determine by the figures, by mathematical calculation, the cost of each class of business.

Q. And the cost is determined by the result of the tests that have been made, in this case, under your formula, is it not?

A. Yes, sir, largely. Of course, many of these figures are actual, regardless of the tests.

Q. Mr. Nay, what caused the authors of this formula to use the classifications of state business that are contained in the formula?

A. That is between "line" and "terminal," and so on?

Q. Yes.

A. Well, we felt we had to get some classification to which the units of service could be applied, so as to bring out the exact cost of the different classes of business.

And after a serious study and discussion of several weeks, I should say, we determined this first separation between "line" and

591 "terminal" was essential in producing ultimately as near the actual as we could get the cost of the state and interstate freight and passenger traffic.

And then the other separations were all made with the same idea, with the idea of making the classes such that we could apply some factor of use, so the cost would reflect the use of the property by the different kinds of traffic.

Q. Is there not a natural division growing out of the character of the business itself, between these two classes, "line" and "terminal" expenses, and these service expenses?

A. Yes, sir, that has been recognized for a great many years. The Interstate Commerce Commission recognizes that in their later classification of terminal expenses, where they provide for "yard" and "station" expenses separately. They did that under the impression that "yard" and "station" are all terminal, but we found they were not; and that a portion of them were performed in connection with "line" service.

Q. Those are the ones in engine and fuel service, and things of that kind?

A. Yes, sir. But the "line" and "terminal" are new.

I think the first attempt I know of was in the Alabama Case, when the Louisville & Nashville used the terms "haulage" and "non-haulage," which are synonymous with "line" and "terminal."

Q. Mr. Nay, under that classification, does the expense follow the use of the property more closely than under other methods with which you have been familiar?

592 A. Yes, sir, I believe it does, because that was the sole object in preparing the classification.

Q. What effect does the detailed analysis which is necessitated in carrying into effect this formula have in doing away with the numerous arbitrary assumptions that were made under the old method of dividing by revenue and ton mileage?

A. It does away entirely with the assumption of increased cost, which was the one thing that received the most criticism in the other cases.

Q. Does that method not substitute to a very large degree the actual facts for those arbitrary assumptions?

A. To a very large degree, yes.

Q. Is the principle of cost accounting which is used in this formula anything new or novel in cost accounting, or is it an established practice in manufacturing and industrial plants?

A. I think it is new in connection with railroad accounting, but the principles we found—and we knew when we came to think of it, were not new.

As, for example, cost accounting in manufacturing plants and other business concerns, where they attempt to separate the expense according to the different classes of product, as we have done here. Our product is freight and passenger transportation.

And then the principle of assigning indirect expenses on the basis of the direct expenses, which has been carried all through

593 this formula, is an old one in connection with other classes of accounts, such as manufacturing and mercantile establishments.

And the apportionment of expenses that cannot be assigned to any particular class, on the basis of units that more nearly represent the use of the property, is not a new one in accounting for the products of a factory.

So those principles, and those are the three main ones, are really not new. But they have not been in use by the railroad company to any great extent.

Q. In other words, it is an application of that old principle of cost accounting for the first time in railroad accounting?

A. Yes, sir, for the first time in this detail.

Q. The theory of that system of cost accounting which has obtained heretofore is attaching the cost of the process to the process itself.

A. That is true. And this has been a process of evolution.

The accounting officer has always tried to give the operating execu-

tive officials the kind of statistics they wanted. Those officers would naturally think about the cost of a train mile. The train mile has been their unit so often and so long that we were trying to produce train mile statistics.

Then, later on, we were trying to produce ton mile statistics.

594 As I say, it has been a process of evolution. But never to this extent. And it will be a long time before this will be carried on permanently in railroad accounting—unless it should be ordered by some Commission—because of the great expense.

If I should ask our President for—let us see—its cost was $75,000 to $100,000 in the Oklahoma Case and Oklahoma is about one-sixth of the total property. That covered the gathering of statistics for about four months; three times that for a year would be $250,000 at least; and six times that would be $1,500,000. If I should ask our President for $1,500,000 to keep statistics like this regularly, I would get a very emphatic "No." "That would be about a two per cent dividend on the entire capital stock of the Company," is about the answer he would make.

Q. Exhibit 17 in this case shows the ratio of the extra cost of conducting state over interstate business: I wish you would take that exhibit, please.

A. I have it before me.

Q. This resulted from the application of the data which was obtained in making the test that was used under this formula?

A. Yes, sir.

Q. I want you to state if in your judgment the effect of the application of the rules laid down in the formula results in a fair division, a correct division, of the expense of operation as between those two classes of traffic, to-wit, intrastate and interstate; and if it

595 over-burdens either class unduly, or exempts or relieves either class unduly?

A. I think that our formula, granting these calculations are correct, of which I have not the slightest doubt, will produce the correct results.

And if either traffic is favored I think it has been the state traffic. If too much expense has been assigned to either state or interstate, then too much has been assigned to the interstate expenses.

And I say that for the reason that in compiling this formula, when we came to a point about which there was a doubt as to what we should do, in most cases—I am not sure but what that is true in all cases—but, at least in most cases, we resolved it in favor of throwing the preponderance of expense on the interstate rather than on the state.

Of course, we tried to be just as fair as we knew how, and we knew we were preparing this data to come into Court and we wanted it to appeal to the Court not as having loaded up the state expenses, but as giving the state a fair proportion of the expenses and even in some cases assigning a little too much to interstate.

Q. This method does away, does it not, with the necessity of de-

termining that relation by expert testimony, as under the other formulas heretofore used?

A. Yes, sir.

Q. By actually determining and ascertaining their relation?

A. Yes, sir.

Q. I will ask you to go back to page 6 of the formula, Exhibit No. 1, which provides for the apportionment of revenue to
596 states between freight and passenger service and intrastate and interstate traffic.

Now, will you take up that and give us your views in regard to the soundness of that formula? I would like you to discuss that sufficiently so as to give us a full expression of your views in regard to it.

I think if you will turn to Exhibit A you will find it and some modifications.

A. The principal items, of course, are freight and passenger revenue, Interstate Commerce Commission Accounts 1 and 2.

The re-division here by allowing for the terminal, that is, by making allowance for the terminal at each end, is in my judgment better than the old basis which I understand was to spread the mileage prorate.

The Rock Island has always made its division on the basis of straight mileage with some allowance for terminals, but this makes as near an actual allowance for terminals as it is possible, in my judgment, to make.

This principle for making allowance for terminals is recognized in every tariff I have seen.

You take the first class rate in any distance tariff and you will find the rate for five miles is say 14 cents and the rate for ten miles is 15 cents and the rate for 15 miles is 16 cents, and so on.

It means that 13 cents of that 14 cents is allowed for the
597 terminal, 6½ cents for each terminal. And the haulage is the difference between that and the rate.

That principle is recognized in every tariff I have seen, whether promulgated by a Commission or by a railroad man, and it is recognized in the division of the freight revenue here, by ascertaining the cost of the terminal service and then equating that cost into miles and making the division which allows for that terminal at each end. It simply divides the haulage part of the rate on a strictly mileage pro rate. That is the effect of it.

Of course, as to the passenger revenue the tariffs have not been made on that basis. The rate on a three cent basis for five miles is 15 cents and for twenty miles it is 60 cents. Although I have been convinced, in working up the statistics in this case, that the passenger rates to be fair ought to allow for the terminal and ought to be divided on the same basis as the freight rates. Whether it will ever come to that or not, I do not know. At any rate, there is a terminal passenger expense which should be recognized and is recognized in this apportionment here.

I do not know whether that gives more revenue or less revenue to

Arkansas on the interstate traffic. But whether it gives more or less I think it is a fair basis of division.

Of course, the intrastate is not changed. The business that moves entirely in the state is still assigned to the state, as it always
598 has been and always will be. It could not be on any other basis.

Those are the two principal items of revenue.

Q. The terminal expense here referred to is ascertained with a great deal of certainty through these time studies which have been introduced here?

A. Yes, sir, that is explained all through the formula how the terminal expense is arrived at.

Q. It has ceased to be a matter of conjecture or estimates, as, for instance, in fixing tariffs?

A. Yes, sir. But in fixing tariffs—speaking of the 13 cent rate, I did not mean to convey the idea that that was simply terminal expense, because there should be some element of profit in that terminal allowance.

Q. What else is there?

A. The "excess baggage" revenue is divided on the same basis.

Q. Explain your views about that "excess baggage" revenue. There has been some dispute about that item. You will find a reference to it on page 6-A.

A. That is divided on a flat mileage basis.

Q. Is that a fair method of division, in your judgment?

A. Yes, sir. I am frank to say I think an allowance should be made for terminals for excess baggage as well as on the division of the passenger rate.

Now, in the division of the express revenue, of course, what I have referred to heretofore is a division between the states assign-
599 ing a proportion to the state of Arkansas. The state and interstate divides itself, according to assignment. But the Frisco Railroad has a peculiar contract on express business. On the Rock Island we do not assign our express revenue on the same basis they do, because our contract is entirely different. I think under their contract their basis of division is exactly right. We have no separate express routes as has the Frisco.

Now "Other Passenger train" revenue, is a small item and the assignment there on a road mileage pro rate basis on the whole is a fair method of division. There might be some terminal allowance there but the amount is so small it would make no appreciable difference.

Switching revenue earned within the state is all assigned to the state of Arkansas. And it is assigned to state and interstate on the basis of the shipments that were switched. That is, if a state shipment is switched the switching revenue is assigned to the state and if an interstate shipment is switched the switching revenue is assigned to interstate. That is absolutely a correct basis, in my judgment.

"Miscellaneous" is small in amount, but the formula states that

each item was analyzed separately. Of course, that is necessary in a miscellaneous collection of different classes of items.

"Storage-freight," all that was earned in Arkansas, was credited to the state, which is proper; and it was assigned to state and in-
600 terstate according to the class of traffic that was stored.

"Storage of baggage" is a small item.

These others are comparatively small items. I have read the formula and I think the basis for division is fair.

Q. We had some difficulty in regard to these miscellaneous earnings in a former case tried. It was divided on an arbitrary basis in those cases. That is done away with in this case, isn't it?

A. Yes, sir; each item has been analyzed and assigned according to its character.

Q. I wish you would state whether in your judgment that portion of the formula you have just been over affords a fair and correct method of division between the state of Arkansas and the other states in which this system of railroad is operated?

A. I do think it does, yes, sir.

Q. And between state and interstate traffic?

A. Yes, sir. Of course, that is assigned actually according to the character of the traffic.

Q. Turn to page 38 of the formula which provides for the apportionment of property value to the state and between the classes of traffi: I want to call attention in that connection to Exhibit 18. You have examined that exhibit, have you?

A. Yes, sir.

Q. I wish you would state, Mr. Nay, your view as to the
601 method that is adopted there of apportioning value to the different classes of service and particularly the assignment with relation to the use to which the property is put.

A. In the first place, on pages 38-A and 39-A it refers to the apportionment of the property other than equipment, and that apportionment has been made on the basis of the transportation expenses, having first been assigned as far as possible to the different classes of service, as shown on the first sheet of Exhibit 18.

The transportation expenses, having been assigned and apportioned to the different classes that are shown in this formula on the basis of use, just as far as possible, it seems fair to use those results in the assignment and apportionment—well, those would be used only in an apportionment of a common item, of the property valuation. That is to say, in each item under "transportation expenses," the assignment direct, or the apportionment among common items, has been on the use basis; and the transportation expenses, which include both "terminal" and "line" expenses, represent that use better than the maintenance does, because the maintenance on all classes of property does not go along from time to time.

Work may be done on a sidetrack today to put it in good condition, and it may be three years before any other work is done on that particular sidetrack. Or, a building may be painted or re-
602 modeled and no other work done on that particular building for several years.

The transportation service, train service, yard service, all those classes of expenses, are going on day after day. So when a test period is taken the transportation expenses are more nearly representative of the use of the property than the maintenance expenses.

Now, if you had maintenance expenses, segregated as shown here, for a long period, I would be of a different opinion. But when a short period is taken the maintenance of way expenses are not fairly representative of the use of the property.

We found that out in inaugurating the work of complying with this formula in Oklahoma. I took five or six heads of the accounting department of the Rock Island Railroad and we spent about a week or nearly ten days in Oklahoma, at various stations. We visited roundhouses, yards, and so on, and we talked with roadmasters and trainmasters and superintendents. It comes to my mind just now that we found one roadmaster who said he had 75 miles of sidetracks in his division in such shape that they would need practically no more work for five years. We then said to ourselves, "We cannot take the maintenance of your division as representative of all the different classes of traffic from month to month." We found the same condition in regard to others. That is why I say that maintenance of way expenses compiled for a month, or for two months, or for six months, or even for a year, are not representative
603 of the use of the property, but the transportation expenses go on from day to day.

As to the apportionment of the equipment, the assignment to the state as shown by the formula and exhibits I think is fair. The apportionment between state and interstate on the basis of the repair accounts is fair, because those charges to repair accounts are based on the mileage which represents the use of the equipment, and that mileage has been compiled and treated by different classes. So that it is treated in sufficient detail to bring about a result that would be fair to use in the apportionment of the valuation.

Q. They are fairly constant, too, they are not fluctuating like maintenance of way?

A. Yes, sir, repairs to equipment is going on right along all the time; that is, we find in our operating expenses that repairs to passenger cars and freight cars is pretty much a constant figure. It fluctuates some, but there are limits not so very far apart between which it remains most of the time.

Q. Is there anything else on that?

A. Yes, sir, I did want to say this: That in the apportionment of the value of property I notice that no portion of the value of general offices, general stores, or general shops, has been assigned to the state of Arkansas. I think that is extremely generous to the state of Arkansas.

604 In the Oklahoma Case we have not been so generous to them, because we feel that Oklahoma should participate in the valuation of the shops; say, for instance, at Silvis, Illinois, where the biggest shops are and which work for all the states.

The same is true of general offices.

Then, I think a working fund is properly includable in the valuation. I have included it in values which I have presented in cases before the Interstate Commerce Commission several times, on the theory that a Company must have cash in the bank, some working fund in order to be a going concern, and it should be entitled to earn a return on that working fund, and I have not had it criticised.

For the Rock Island I made a computation covering a great many years, by taking the bills that we had outstanding against other companies and individuals, representing money which we had spent and had not included. It required a working fund to take care of that. Then from that I deducted bills which we owed and which we had the advantage of; then took a reasonable amount of cash on hand, took the material and supplies that we had to carry on hand and had paid our money for, but had to carry it until it was used, and I found that with us the working fund averaged about 5% of our total book value, so I arbitrarily added 5% and showed how it was arrived at, as the result of our experience, and the addition was never criticised. I think it is perfectly fair that it should be in.

605 Q. Is there anything further on that?

A. I think that is all.

Q. Mr. Nay, I will ask you to state whether in your judgment the assignment of values applied in this formula results in its proper assignment with reference to the use to which the property is put?

A. Yes, sir, I think so.

Q. In this case, Mr. Nay, a test covering a period of two months was made, in accordance with the requirements of this formula: I want to ask you what you think of that length of time, a period of two months, as to whether it represents or reflects the result of the year's business.

A. Well, I think that does fairly represent the conditions throughout the year for the purposes for which the tests were made; that is, for determining the relative amount of the different classes of traffic. I think that for two or three reasons——

Q. That is the only purpose for which that test was made, is it not?

A. Yes, sir. In the first place, I found that the sum of the operating expenses for those two months is almost one-sixth, it is very close to one-sixth of the total operating expenses for the year ended June 30, 1913; that is, they are not abnormally large months or abnormally small months. They are fairly average months.

Then another reason is this: When we began preparation for the Oklahoma Case we started the gathering of these statistics before we had the formula completed. We had gotten far enough
606 along so we could tell what was needed. The case was set for January 1, and we thought we had to go to trial on January 1. So we began gathering the statistics on September 1, the test statistics just like those you have gathered here, for November and December. When we got to the end of October, we shut off the work except that we kept the men on the line still gathering the

statistics up to the end of December, but we completed our compilations for September and October and carried our results clear through to the end.

We then secured a postponement of the case and later on had time to combine the months of November and December with those of September and October. When we got the results for the four months they were not substantially different from the results based on the two months' test. So that is another reason why I think the two months' test is fair.

We found that nobody would have been misled as to the final results if we had gone into Court on the two months' test; that no conclusion would have been different on the basis of the two months' test from what it would have been on the basis of the four months' test.

I spoke of the Alabama Rate Case and the one week's test: I did not think that was long enough, and later on the Court decided that one week was not sufficient. But two months is eight and one-half times one week, nearly nine times one week, and in my judgment it is a fairly representative test.

The Court:

Q. It would depend somewhat upon the months and the
607 time of the year that is selected?

A. Yes, sir, you are right about that. There again, your Honor, if there is any favor shown I think it is shown to the state because in the months of November and December there would be more cotton moving than in the summer months. Cotton is all treated as interstate traffic and that would add to the interstate tons and tons one mile, as compared with two summer months like April and May, when there would be but little cotton moved.

But, as I said before, the sum of those two months is practically one-sixth of the total, and I think the relative amount of business, state and interstate, carried on the through and local trains in those two months would be fairly representative of the whole year.

It would not be much different on the Rock Island and Cotton Belt, and I am familiar to an extent with the figures of both roads; although I have never made any special test on the Cotton Belt I have gone carefully over the tests that have been made in recent years by the Cotton Belt.

Q. Is there not some difference between that part of the Frisco which runs in the northwestern part of the state, and on the Cotton Belt?

A. I think that is true; yes, there is some difference there.

Q. The products in those sections are different?

A. Yes, sir.

Q. But on the other hand, the products of the section
608 where the Kansas City Branch and the Memphis Branch are would be similar to the Rock Island and Cotton Belt?

A. Yes, sir. These tests are for the purpose of determining the relative proportion of the state and interstate, the through and local, and when you cover a period of two months, as has been done

here in this case, you have a pretty representative period in almost any part of the year, unless you pick the very smallest month or the very largest month.

I remember in the other case that I criticised, while on the witness stand, the taking of the month of October, 1907, as a representative month, because that was the biggest month in the year.

Q. That was owing to the peculiar conditions existing that year?

A. Yes, sir. I think this is a different case, your Honor, even though we have two months instead of one. The conditions were normal during these two months, so far as I am informed, and there was nothing unusual.

Mr. Moore:

Q. Mr. Nay, you spoke of criticising the use of the month of October in the Iron Mountain Case: As I remember it, one of the criticisms was the lap-over proposition that occurred in that case. I wish you would state what your views are now with regard to that, with reference to the period that is taken in this case, and whether the correctness of the result of the test that was made here would be affected by the lap-overs. Explain that fully, please.

609 A. The lap-overs that we talked of then were an entirely different proposition from what would be lap-overs in these two months.

In that case the state made an analysis, as between state and interstate, of the business that was handled on local trains; took it from train reports and the conductor's reports covering the business that actually moved in that month. Then they deducted that result from the total business which the auditor took into his accounts.

It is impossible for the auditor to take into his accounts the business that actually moves in the month. If a shipment starts out from a point on the Frisco, or on the Iron Mountain, in the latter part of the month of October on an interline way-bill, going to a point on the Rock Island, it will reach its destination in November, the next month. We report it to the Frisco in November. The Frisco auditor would take that way-bill into his November account, although the Frisco train actually moved in October. That shipment, if it was moved in a local train, would be in the statement compiled by the state's witnesses, deducted from the total compiled by the auditor, which did not include that shipment.

As I said before, it is a principle of accounting that you cannot deduct something from a quantity which does not contain that something.

So that the lap-over that was talked of then was the difference between what was actually carried in the trains during the
610 month and what the auditor took into his account, and that does run into quite an item. But the ordinary lap-over is not nearly so large an item; that is, you take the lap-over that the auditor has from month to month: In the course of two, three, four or five months, that which he carried in the beginning of the month will offset that which is carried over the end of the month, but when you come to compare the business actually handled on the trains

with what is taken into the auditor's account, we find that there is often a very large variation, for the reasons I have stated.

The auditor takes into his October account business which moved in the previous month; that is, there are lap-overs brought in from the previous month as well as carried over to the next month. That is the sort of lap-over that we talked about and criticised, and I would criticise it today just the same.

As I said, we changed our system of compiling monthly operating statistics, because we found that difficulty. We would try to match up the auditor's tons for October, for example, with the train miles and the cars miles, and the engine expenses and train expenses for that month, covering the tons actually moved, and they did not match. So we changed to compiling the tons from the conductor's wheel reports as a basis for arriving at our cost accounting figures. I just wanted to make that explanation of the difference between the lap-overs then and the lap-overs which might run in the auditor's office, say for a period of four months, from one month to the next. I was going to say that even there the auditor
611 might carry over from one month to the next what he brought in from the previous month, but the difference would not be nearly so large as the difference between what actually moved in the trains and what he took into account.

Q. Mr. Nay, my attention is called to the fact that no revenue figures are submitted in this case for the test period of November and December, and that the traffic and operating figures obtained for those two months are used only to determine the cost relationship.

A. Yes, sir.

Q. In view of that fact, would the lap-overs, which caused so much trouble and discussion in the Iron Mountain Case, have any part in the figures submitted in this case?

A. I cannot see how they would have anything to do with it at all, because there would be no lap-overs.

Q. Another thing that I do not think you have alluded to, and to which I wish to call your attention, is the effect that lap-overs for a period of one month and a greater period would have on the two months——

A. Well, the effect of the lap-overs, of course, diminishes as the length of the period increases, because the lap-overs will remain substantially the same, and the greater the period you spread them over the less the effect is felt.

Q. From the conditions under which the test in evidence in this case was made, what is your judgment as to whether there are any lap-overs that would affect the result of the test?

612 A. As I said before, I don't see how there are any lap-overs here because they have taken the total operating expenses, the ton miles, the train miles, the car miles, and all of these elements that actually occurred in these months.

Q. So you do not think there is any room for lap-overs in this case? That is what I want to call to your attention.

A. No, sir.

Q. Exhibit No. 22 shows the earnings, expenses, taxes, rentals, hire of equipment, return upon the value of the property, and so on, for the year ending June 30, 1913.

A. Yes, sir.

Q. That is the result of the application of the formula that we have been discussing: In this case we wished to obtain the same result as to the years 1912, 1911, 1910 and four months of the year 1907?

A. Yes, sir.

Q. If you will take Exhibit No. 23, which is the exhibit before you and with which I suppose you are familiar, you will find that that was done through this means: During the years mentioned the auditor of the Frisco had used a formula of division in his reports to the State Railroad Commission, and also in his operating statistics, and those results were figured out. This has been arrived at, as you will see by an examination of Exhibit No. 23, by a comparison of the result of the formula used by the auditor with that used in this case.

I want to call your attention in that connection also to the
613 fact that it is conceded in this case that the formulas used by the auditor were not such as are used here, and we concede that they were not sound in this respect.

With that in view, I wish you would examine the method adopted in Exhibit No. 23 and state your views as to whether that is a correct method of arriving at the earnings for those years.

A. Do you refer to the earnings only? You spoke of the earnings.

Q. No, the entire account, earnings and expenses. What was done was the equating of the earnings and expenses of those back years on the relationship of the results obtained in 1913, with the application of the figures in the formula.

If you will take Exhibit No. 24 and examine page 12 you will find there the figures showing what was actually done. Have you Exhibit No. 24 there?

A. Yes, sir. That refers to 1912.

Q. Yes, that is the first year that was equated.

A. How is that?

Q. 1912 was the first year that was equated.

A. I understand that what was done was that they took the earnings or revenue, first; that they were re-divided on the basis of this new formula and compared with the original results arrived at by the auditor.

Q. That was done for the entire year?

A. For the entire year 1913, and it was found that the
614 results under the new formula, in each item of the earnings, was a certain percentage of the results under the old formula, and then those percentages were applied to the earnings of 1912, 1911, 1910, and the four months of 1907. Take the freight earnings: It is shown here that the percentage under the two formulas was 100.82% interstate and 100% even intrastate. Of course, there would be no difference in the intrastate.

It was assumed that the difference between the results of the two formulas would be the same percentage in prior years, and I think it is a fair assumption that if the figures had been worked out in detail it would produce substantially the same result. There might, perhaps, be a difference of a few dollars due to the fractions, but the results produced by that equation are right.

Q. Is that a correct principle of cost accounting?

A. Yes, sir, and it would not matter if the old formula was wrong, the relations between it and the new formula would remain the same. It would always be the same, whether it applied to one year's business or another.

Q. The equating would overcome any error that might exist in the formula as used in previous years?

A. It would if the new formula is correct, and I believe the new one is correct. What I mean is the equation would reduce the figures of the former years to the basis of the formula now before us, and that is true of operating expenses as well as of earnings. I understand that a similar method was followed in connection
615 with operating expenses: That it was found that under the new formula the operating expenses were so much; under the old formula they were so much, and the relation of each one of the five classifications—maintenance of way and structures; maintenance of equipment, traffic expenses, transportation expenses and general expenses was found, and then that same relation was applied to those five general headings of operating expenses for the previous years.

Q. That is correct.

A. I think that is a fair and accurate method of reducing those earnings and expenses to the basis of the new formula. Of course, as I said before, if they were worked out in detail the results would probably be a few dollars different one way or the other, but they would not be substantially different.

Q. Mr. Nay, will you give us your views as to the effect of stimulating traffic by placing the intrastate passenger fare on a two cent basis, and whether or not, if there was any apparent stimulation, it was at the expense of the interstate business?

A. I think the two cent intrastate fare, while it may temporarily stimulate business to a small degree, produces no substantial stimulation of traffic, and by "stimulation" I mean the creation of new traffic, not the transferring of traffic from interstate to intrastate.

In the Missouri Rate Case I prepared an exhibit—I haven't a copy of it with me, but I would be glad to furnish it if
616 you desire—which showed that for the year ended June 30, 1908, the eight states in which the Rock Island ran, which had ordered, either by Commission or Legislature, the two cent fare, the increase in the traffic—not revenue, but passengers one mile, was about ten per cent.

There were five of the states in which the Rock Island ran where the rates remained the same, three cents in four of them and four cents in one of them. In those states the increase in the intrastate traffic (and the other increase of ten per cent to which I referred was

in intrastate traffic) was almost exactly the same percentage, ten per cent. The former increase was slightly in excess, perhaps one per cent, the one being ten and a fraction and the other a fraction under ten, but there was substantially a ten per cent increase in the eight states where the two cent fare went into effect and in the five states where the old fares remained in effect.

The Court:

Q. Mr. Hamilton testified that the records show that where the intrastate fare is two cents and the interstate fare is three cents the increase is practically all from those who are engaged in interstate travel but purchase tickets to the end of the state, the last station in the state, at the two cent rate; and he claimed that is shown by the large increase of tickets purchased at the first and last stations in the state.

A. Yes, sir, borderline stations.

Q. What do you know about that?

617 A. I think that is true. We prepared statistics for one month in Oklahoma, the month of August, 1913, which showed a very large increase in the sales at the borderline stations. Then we took fifteen interior stations and took the sales from those interior stations to other interior stations, so we would eliminate the borderline proposition entirely, and we showed that there was a decrease, a heavy decrease, in revenue, and only just the ordinary increase that might be expected in the business. In some of those stations there was even a decrease in the business. So while the borderline stations showed a heavy increase the interior stations did not.

Q. You mean from interior stations to the borderline stations they would show an increase?

A. I mean from interior stations to interior stations they did not show that increase.

Mr. Moore:

Q. The effect of that, as I understand it, was that the increase of intrastate traffic on the border points was taken from the interstate business by interstate passengers buying a ticket to the state line, and then another state ticket?

A. Yes, sir, just as Judge Trieber said.

The Court: It was Mr. Hamilton who testified to that.

A. You said Mr. Hamilton testified, yes.

618 I want to refer, let us say, to the month of October, 1913, after people were pretty generally aware of what they might do in buying to borderline stations, in Oklahoma the intrastate revenue increased $16,000; the interstate revenue decreased $23,000, making a net decrease of $7,000 in the total revenue in the month of October.

The Court:

Q. What year was that?

A. October, 1913. That was four months after the two cent fare

had gone into effect and people were generally aware of what they might do.

Q. In what state was that?

A. Oklahoma. I have many Oklahoma statistics because I have been doing a lot of work on that case.

In November there was a decrease in the intrastate revenue of $11,000, and a decrease in the interstate revenue of $25,000. For the eight months ending in February, 1914, our interstate revenue decreased $180,000, in Oklahoma, an average of $15,000 a month.

If there was no switching of passengers from one to the other, it is not possible for the intrastate to increase and the interstate to show such an enormous decrease.

Q. Then your opinion, based upon those figures, is that you do not believe people will neglect their business and travel around just for the reason that they can travel for two cents a mile instead of three cents a mile?

A. No, sir, I do not. People travel when they must and when they want to. Business men travel whether they pay two cents or three cents. If a man's wife or relatives are seriously sick he
619 is going to them even if it costs him five cents a mile. If people are going on a pleasure trip the railroad fare is not the most important item of their trip.

We had some individual cases on the Rock Island in Chicago: We have a suburban service which averages, say from Englewood, about six or seven cents per trip for commutation tickets, to Normal Park and Hamilton Park, those stations being from six to eight miles from the down town district.

A few years ago the elevated line extended its road into this same territory, which formerly had been exclusively covered by our suburban service and the surface line. Immediately there was a very substantial decrease in the ticket sales at our suburban stations. It might be said that traffic was stimulated to the elevated line, but we lost it.

A more striking case of that was the case of the suburb in which I live, Morgan Park, 14 miles south of the loop district: There has been a street car line through that village for many years. The fare has been ten cents on the street car line from Morgan Park to downtown. It takes from an hour and a quarter to an hour and a half to make the trip. The commutation fare on the Rock Island Suburban line was practically ten cents—ten cents and a small fraction—and the trip was made in from 38 to 42 or 43 minutes.

Two years ago last March the surface line reduced its fare
620 to five cents, and immediately the ticket sales at the Morgan Park Suburban station fell off a thousand dollars a month. From the standpoint of the surface line business was stimulated by the reduction of that fare to 5 cents, but there was no new business; people went downtown to work just the same; they went to the theater and they went for pleasure purposes, and it is just the same as it was before, only they travel on one line instead of the other.

When the two cent intrastate passenger fare was put into effect the

only thing to be deprived of business is the interstate fare, and our figures show that is the case.

Mr. Moore:

Q. You spoke of a surface line there: You mean a trolley line?

A. Yes, sir, I mean the electric street car.

All the statistics that I have been able to get together show that while there may be some stimulation for a short time, there is nothing permanent.

I have another exhibit along that line which covers the passenger business in the United States for thirty years.

Q. Will you file that as Exhibit No. 31?

A. Yes, sir. I prepared these figures from the annual reports of the Interstate Commerce Commission back to 1888, and prior to 1888 I got them from Poor's Manual of Railroad Statistics, which is a reliable publication.

After getting the figures in that shape I then put them into five year periods, because frequently there is an abnormal condition in one year. I took the last five year period as the one since the
621 two cent fares have been inaugurated.

This little exhibit shows simply the increase or decrease for each five year period over the preceding period. That is why the space is blank opposite the first five year period, because there is no comparison of that with itself.

It will be noted that during the first two five year periods the increase in the "passengers one mile" did not keep up with the road built; that is to say, while there was an increase in the period from 1888 to 1892 over the preceding five years, of 27.9% in passengers one mile, the average per mile of road was a decrease of 1.3%.

There are two striking features in this exhibit that I want to point out: First take the period from 1893 to 1897: That is the period in which there was the greatest decrease in the average revenue per passenger per mile, shown in the right-hand column, 6.6%—the mark opposite those figures indicates decrease. That is the period with the smallest increase in passenger traffic during those thirty years.

Then go down to the period from 1903 to 1907, the only period during those thirty years in which the average revenue per passenger per mile increased slightly .6%, and that is the period in which there was the greatest increase in the passenger traffic in the United States.

There cannot be any traffic taken from state or interstate
622 to the other, because this includes all of the passenger traffic.

It cannot be taken from one road to the other, because all the roads are included, and it is remarkable that during the period which shows the greatest decrease in the average rate per passenger per mile occurs the smallest increase in traffic, and during the only period which shows an increase in the average revenue per passenger per mile is where we have the greatest increase in the passenger traffic. It seems to me that that is conclusive, as a total proposition for the United States, that the reduction in revenue per passenger per mile does not substantially stimulate traffic.

Q. Mr. Nay, in making up estimates of value, if depreciation should be deducted should there not also be a corresponding charge to operating expenses——

A. Yes, sir, I think so, absolutely, whatever is taken off the property for depreciation, if any reduction is made, that amount should be charged as a part of the cost of operating.

It would not be fair to deduct, say a million dollars, for the purposes of illustration, from the value of property, because it was claimed that the property had depreciated to that extent, and not charge a proper proportion thereof to each year's operating expenses. The entire amount that is taken out of the property ought to be included in the cost of operation.

I think either proposition would be unfair: It would be unfair to charge depreciation to operating expenses and not take it out
623 of the property, and it would be unfair to take the depreciation off the property and not charge it to operating expenses.

The Court:

Q. Mr. Hamilton's testimony was that it is not charged to operating expenses until the expense is actually incurred.

A. Yes, sir.

Q. And as to the depreciation of cars, for instance, that is not charged until they are actually discarded?

A. Yes, sir, but if it should be determined later on that something should be deducted from the property, representing depreciation, then the charge should go into operating expenses.

Q. Is there not an annual depreciation of the motive power and transportation part of the cars, passenger and others, in spite of all the repairs that may be made, by reason of the fact that improvements are made, new machinery is invented and heavier cars are used? Take it in the passenger department: The old wooden cars have been gradually displaced with steel cars, and the old cars either have to be sold at a sacrifice to some smaller road, if you cannot use them on the branches, or else discarded entirely.

The same way with freight cars, they are bound to gradually wear out: Is there no charge at all made of that to the expense account, the same as is done in the manufacturing establishment?

A. There is a difference in the practice of railroads in that respect. My understanding is that the Frisco makes no charge of that kind.

624 Q. What about the valuation of that property? Do you think it ought to be valued at the original cost regardless of how long it has been in use?

A. This is my point, your Honor: I will take a box car as an illustration: Suppose it cost $1,000 originally, and we will suppose, based on our experience, that that car will run for twenty-five years.

Q. That is, if you keep it in the best condition?

A. Yes, sir, keep it in repair.

Q. And there is a depreciation of 4% a year?

A. Yes, sir, $40.00 a year. Now, we will suppose that at the time this case is tried that car is 12½ years old. It is half gone: 50% of

it is gone, or $500.00. From our experience we know it will become obsolete, there will be some new type of car that will take its place. Nothing has yet been charged against operating expenses to represent that $500.00 which, theoretically, has gone. If that charge had been anticipated and 4% charged each year, there would have been $40.00 per year charged to operating expenses, and up to this time there would have been $500.00 charged to operating expenses and set up as a reserve to take care of that car when it goes out.

My point is, that not having been charged, if you reduce the value of that car today to $500.00 you must charge that $500.00 to the cost of operation, re-adjust your operating expenses to that basis; make your accounts what they should have been.

625 Q. You mean that the one balances the other?

A. Yes, sir, that the public cannot pay a return on simply $500.00 and not compensate the Company for the obsolescence of the car going out of existence. That is the point: That if the re-adjustment is made by allowing depreciation, then not only the property account must be adjusted but the operating expenses must be adjusted correspondingly. You cannot fairly do one without doing the other.

Q. My understanding is that in manufacturing establishments they charge off a certain percentage at the end of the year, based, of course, upon experience, and taking into consideration the continued improvements that are being made, and the natural wear and tear which will occur in spite of the greatest care that may be taken. They charge off a certain percentage every year for depreciation of the property and that comes out of the earnings and is deducted from the gross profits before the net profits are determined, but nothing of that kind is done by the Frisco?

A. No, sir.

Q. On the other hand, Mr. Hamilton testified that when those cars are finally discarded, or sold for a very small sum, then the whole of it is charged to expense account?

A. Yes, sir.

Q. How can you tell in what year that has been done? If that is done regularly, a certain amount of it every year, would that not even it up with the depreciation?

A. It would, yes, sir, and it is on the same principle
626 exactly as in renewal of ties or bridges. You put in a tie today to replace one that was put in eight or ten years——

Q. But the depreciation is not so rapid and so continual in cars and locomotives——

A. No, sir, but when we get our treated ties in this creosote and chloride of zinc process, those ties may last as long as a freight car. I would not be surprised if they would.

Then again: We put in a tie today and charge the entire cost of that tie to operating expenses today.

Freight cars are not bought all at one time nor scrapped at one time; they are bought piecemeal and scrapped piecemeal, and the charge that goes to operating expenses when a car is discarded, just as you said a while ago, evens itself up.

There are two practices: Some railroads anticipate that charge and

set up each month and each year a reserve which is to be charged to operating expenses under the head of "depreciation," so when a car goes out of existence they have already charged to depreciation during all these years the value of the car. If there is anything left they charge what is left at the time it is destroyed.

As to manufacturing plants, I made some investigation of those when this subject of depreciation first came up in the Interstate Commerce accounts. I talked with members of several manufacturing concerns and asked them how they computed depreciation,
627 and this is the gist of what they told me:

They said, "If we have had a good year we will charge off ten per cent. If we have had an extra good year we will charge off fifteen per cent, but if we have had a poor year we will charge five per cent, and if we have had a very poor year we will charge nothing."

Q. Is not that limited to those manufacturing concerns where the owners make the profits out of the stock in the stock exchange——

A. No, sir, that is one of the things I asked a good friend of mine, Mr. John Wilder, the President of a tanning company, and I think the stock is very closely held. I don't think it is on the market at all.

Q. Whom do they deceive? They deceive themselves. Those who have stock listed in the stock exchange do it for the purpose of deceiving the public. There is "method in their madness."

A. I mentioned that to indicate that there is no uniformity even among manufacturing concerns, and so there is no uniformity among the railroads. But the point I wanted to make——

Q. Mr. Hamilton testified that some thirty odd locomotives were in such condition that since the receivership they have been discarded entirely, but they were up to that time carried at their actual cost.

A. Yes, sir, I read that testimony. Of course, in that case
628 the amount was not very large; it was less than $200,000, as I recall it.

At this point recess was taken until 1:30 P. M.

629 After recess on Tuesday, June 30, 1914, the following proceedings were had:

Cross-examination of Mr. F. Nay.

By Mr. Hill:

Q. Mr. Nay, you made a statement this morning that I did not catch the full purport of, in regard to the making of rates for different distances; that they were so framed that they recognized the terminal cost: I understand that that was the purport of your statement?

A. Yes, sir, terminal cost or terminal service.

Q. You made an illustration of that. I wish you would please repeat it, as that was the point I did not quite catch.

A. The illustration I gave, Judge Hill, was this: Take a distance tariff and take the first class rate. I think a pretty fairly average amount for the distance of five miles is about 13 cents per hundred

pounds. When you add five miles and make the distance ten miles, then the rate is say 14 cents per one hundred pounds. And for fifteen miles, it will be 15 cents per hundred pounds, and for twenty miles it will be 16 cents per hundred pounds, and so on; which would indicate that the proportion of the rate that was allowed for the five miles haul would be one cent and the other part of the 13 cents would represent the terminal service at each end.

Q. In other words, the rate per ton per mile would be decreasing with the distance hauled?

A. Yes, including the terminal charge, that is right.

630 Q. The rate would not in terms separate the terminal service from the haul service, but would be a recognition of a terminal service at both ends of the haul?

A. Yes, sir.

Q. By arranging the higher rate per ton per mile for the short haul and making it thin out for the longer haul.

A. Yes, sir. I think that usually runs down to say a fifty or a one hundred miles distance; and then the charge will be one additional cent for each ten miles.

Q. I believe we have an illustration from Mr. Doddridge in the former rate cases to the effect that if you finally ran it out to the North Pole the terminal cost would be extremely thin, when spread over the whole distance.

A. My judgment is these tariffs that indicate the terminal cost would be practically the same; no matter how far you ran the rate out you would always have your original 13 cents in there.

Q. But that would be spread out pretty thin if it was spread out over the haul to the North Pole; it would be extremely thin per ton per mile for the haul: That is the idea, isn't it?

A. Yes, sir.

Q. Suppose there was a haul of 500 miles, say from St. Louis into Oklahoma; say 415 miles from St. Louis to Fort Smith and say 64 miles beyond that to carry it to some point like Athens.

—. That would be a trans-state haul on the Frisco for 500
631 miles, of which approximately 100 miles would be in Arkansas.

Q. According to your formula here you ascertain your terminal cost and add a mileage representative of that terminal cost to that total five hundred mile haul: That would be your plan under this formula, wouldn't it?

A. Yes, sir, adding the terminal mileage to Oklahoma and Missouri.

Q. You would add, then, a total of 156 miles to that and make a constructive mileage of 656 instead of an actual mileage of 500, wouldn't you?

A. Yes, sir, that is right.

Q. If you were to divide on the straight mileage pro-rate, one-fifth of the revenue derived from that haul would go to Arkansas, wouldn't it?

A. Yes, sir, assuming the haul in Arkansas is 100 miles.

Q. As a matter of fact, it is 101 miles, so we are not very far from the facts.

A. I didn't know what it was.

Q. Assuming that the revenue from a given car is $50.00, that would assign $10.00 to Arkansas on a straight mileage pro rate?

A. Yes, sir.

Q. And by your equation it would assign something like $7.50, wouldn't it?

A. I haven't figured it up, but it would be substantially a less amount.

M. Hill: You have figured it, haven't you, Mr. Hamilton?

Mr. Hamilton: It would be about $7.50.

Mr. Hill:

Q. Then by your equated pro rate instead of $10.00 being
632 assigned to Arkansas you would have $7.50 assigned to Arkansas interstate revenue?

A. Yes, sir, assuming that the calculation is correct.

Q. If the rate contemplated the terminal cost, which evidently it did, by thinning it out in this way these terminal costs were absorbed in that $50.00 and spread over the whole 500 mile haul, weren't they?

A. Under the old mileage prorate, they were, but under this equated prorate they are not.

Q. As a matter of fact, the tariff is made, as I understand you, so that this terminal cost which attaches to every shipment may be spread over the entire haul. It is a fixed quantity at each point, and the longer the haul the greater the spread of that fixed quantity.

A. On a straight mileage prorate, it is, but on this equated mileage prorate, the object of that was to put this charge, which represented the terminal service in the state where the freight originated and where it had destination, instead of in the state it crossed.

There is a very striking example of the fallacy of the straight mileage prorate in case of the Pennsylvania Railroad, which is a very prosperous road, as is well known. Their report to the State of Illinois showed that they divide earnings on a straight mileage, and it showed an immense deficit to the state of Illinois, because they have an enormous expense for terminals in Chicago and only 19 miles located in the state of Illinois.

633 If they had followed this mileage pro rate plan we are following in this case they would have had part equated to Illinois and it would be a fairer basis. I think that is a pretty good illustration of it.

Q. It is recognized by the railroads in the preparation of tariffs, as well as by the Interstate Commerce Commission, and by all rate making bodies, is it not, that the rates thin out according to the length of the haul?

A. Yes, sir, that is recognized, and that is because the terminal service is the same regardless of the length of the haul. You have proportionately more haulage in miles with less increase in the rate.

Q. Now, you take a ton mile haul out of St. Louis and contrast it with a five hundred mile haul such as I gave you in my previous question. On say a twenty mile ton shipment or car, there would be according to your formula here 36 cents a ton, or about $7.20 terminal charge to start with. If it went only ten miles, 4½ mills per ton per mile, that would be only 90 cents average cost of the original haul and would make the total cost of that shipment $8.10—I should have multiplied that terminal cost because there are two terminals, but we can disregard that. That would be made up of 90 cents terminal and $9.20 road haul cost?

A. Yes, sir, that would simply represent the road portion cost. Of course, there should be something included for taxes, hire of equipment, interest on the investment and so on.

634 Q. That would be the same proportionately?

A. Yes, sir.

Q. Some may disregard that for purposes of illustration?

A. Yes, sir. I thought we should mention that so we would not think the rate is bare cost only.

Q. These figures represent only operating conditions and to them should be added "Hire of equipment," "Taxes," "Rentals," plus a fair profit on your investment?

A. Yes, sir.

Q. That should apply to all rates, long and short, state and interstate, so that may be disregarded?

A. Yes, sir.

Q. If you made that haul of twenty tons of freight for 500 miles, and considered it as having one terminal there instead of two, you would still have your $7.20 terminal expense spread over the 500 miles; and your rate per ton per mile, of course, would be decreased by reason of that?

A. Yes, sir, increasing the terminal expense it would decrease as the distance increases.

Q. If that is true, and I have no doubt of the correctness of it, as a general proposition, why isn't it that this terminal cost which you are setting up here as represented by constructive mileage, is already cared for in the fixing of the rates?

A. It is cared for as a haul proposition, but when we come to divide among states you must do either one thing or the other. On a shipment from St. Louis you must import into your state expenses a part of the terminal cost, if you import into your state rev-

635 enue that part of the rate which represents terminal service. Or you must make an allowance for the terminal service and reduce the proportion of your trans-state shipments to the bare cost of the haulage. It is fair to do either one thing or the other.

Take the Pennsylvania Railroad Case I spoke of. That situation could be overcome by either spreading the terminal cost at Chicago over the whole line, which would be a very difficult matter, or by allowing for that terminal cost in the [illegible]n of the rate, in arriving at Illinois' proportion of the revenue.

It would not be fair to Missouri or Oklahoma, in the illustration you spoke of, to let them stand that terminal cost of station expense,

switching and so on, and then get only their straight mileage proportion of the rate, which would give Oklahoma the benefit of that terminal service.

Q. But, as I see it, that is already cared for. Taking the illustration we have made, if it were not for that terminal expense entering into the rate, instead of ten dollars being assigned to Arkansas there would be $12.50 assigned to Arkansas, if that was disregarded. But the mere fact that they have taken off $2.50 for terminal—or any other sum—to take care of the terminal cost, has made the proportion assigned to Arkansas $12.50 or $15.00, as the case may be. And in addition to that, you put this constructive mileage on there to take care of it again.

A. I don't see how Arkansas can possibly claim $12.50 in the illustration you gave of a straight haul of 500 miles and an
636 intermediate haul. $12.50 would be one-fourth of the total.

Q. If this terminal cost had not been regarded in fixing this rate, this revenue would have been that much higher, would it not?

A. If the terminal cost had not been regarded the rate then would have been, say, perhaps $30.00 or $35.00, and one-fifth of it would have been $7.00 or $7.50. If you had left out the terminal cost, which figured $12.50, then the rate would have been a straight-away haul, or $37.50, and your one-fifth would be $7.50, just exactly what it gets under this equated distance.

Q. But your terminal cost has been recognized and absorbed in every mile of the rate?

A. I understood your question, if it had not been recognized.

Q. Say if there had been no such thing as terminal cost at all, then the rate would have been higher. I am taking a fixed quantity of $50.00. Say there was no terminal cost; say that the other road delivered it without cost. I am taking a fixed quantity to divide, to begin with. Say we will take $50.00. If you did not have a fixed cost for terminal to take care of it, we would get a higher proportion for Arkansas.

A. You assume that the $50.00 may or may not include terminal.

Q. I am assuming it does. I am assuming that it is a fixed quantity. If it includes terminal service, which it does, that is
637 spread over every mile of the haul.

A. Well, it is spread over every mile of the haul, in the rate. That is, the rate is made so much. But when you come to divide the revenue among the states you must allow something to the state that has the expense of the terminal.

Q. Haven't you already allowed that when you spread it over every mile of the haul?

A. No, sir, we have not.

Q. We may differ about that, Mr. Nay, but I think we have the facts before the Court.

A. Yes, sir.

Q. You said that if the new formula was applied to the old formula, it would not make any difference if the old formula was based on a wrong theory, as I understood you, in obtaining conditions from the new formula and applying them back to the prior period.

A. Yes, substantially that. What I intended to say and think I said was this: That in reducing the figures for the prior years to the basis of the present formula, it could be done by applying the percentage of difference between the two formulas, as actually ascertained for any later period. That is to say, if the new formula applied to a certain period and the figures produced one result, and the old formula applied to the same set of figures produced another result, and it was found that the new result was 95% of the other result, then if you had the result under the old formula for
638 a prior year you could take 95% of that result as what would be the result of the application of the new formula—or, substantially that.

I admitted, Judge Hill, that there might be a few dollars, a small amount of difference, due to working out the fractions in detail, but the result would be substantially the same as if the new formula had been applied in detail to that prior period.

Q. It developed here in this case that the four months' period under inquiry in 1907, were worked up partially under one formula and partially under another formula. There has been a new exhibit put in evidence, probably correcting that. But, assuming that state of affairs, that out of four months one month was worked up under one formula and three months worked up under another formula, and the percentages obtained under the new formula applied to that: What would you think of the results evolved from such method as that?

Mr. Moore: You want him to testify as to the results based on Exhibit No. 27-A, which reconciles and corrects those matters you speak of?

Mr. Hill: I covered that in my question. I put the question as the latter stood before you made those corrections.

Mr. Moore: You want him to answer a hypothetical question, assuming that no change had been made.

Mr. Hill: That is my question exactly.

639 A. I would say if those two old formulæ were substantially different the result would not be satisfactory—would not be reliable.

Q. They would be of no value at all?

A. I would not quite say of no value at all. It would depend entirely upon the difference between those two formulæ that were used. If they were radically different, not alike in any respect at all, perhaps they would be of no value; but if they were substantially the same in certain features, and differed in portions only, then the result would be nearer right.

Q. In that four months' period, according to the corrected exhibit which has been put in, there is $48,000 change—no, there is more than that—$48,000 in errors and $74,000 on an item that does not belong in there, and which has been taken out of there.

Mr. Moore: I think you are mistaken. It is $48,000 including some clerical errors.

Mr. Hill: That is what I said.

Mr. Moore: That grew out of the use of the different formulæ.

Mr. Hill: It is partially clerical errors, and partially the use of the wrong formula, as I understand.

The Court: I understood Mr. Hamilton's testimony to be that
\$48,000 was errors he found in Mr. Douglas' accounting, that
640 which he had credited in his accounts. The \$74,000 was
taken out on account of the rental. But my recollection of the testimony is, and that is what I understood, that as to the \$48,000 he found there had been several errors made by Mr. Douglas, which he corrected, and that made the difference.

Mr. Moore: And that correction had been agreed upon between him and the state's accountants.

The Court: He and Mr. Oliver agreed upon that.

Mr. Hill: I will ask Mr. Hamilton if this is not correct: That the total errors, in clerical errors and departures from the formula were about \$50,000, and by correcting the September data to conform to the formula, of the other three months, it would reduce that to about \$48,000.

Mr. Hamilton: Yes, that is correct, and they are in Exhibit 28-A, and the equations have been made in all the exhibits applying Mr. Douglas' old formula. We have had that re-checked.

Q. Mr. Nay, these corrections have all been agreed upon. There is no controversy about those.

But suppose those corrections had not been made, and such errors had occurred in the basis statistics upon the formula applied, wouldn't you say the result would be of no value?

A. I would have to qualify that answer by saying it would depend upon how wide apart the two old formulæ were, how much they differed.

I am not familiar with them at all, but it might be that the bases
for dividing, for instance maintenance of way and structures
641 was different, and that the bases for dividing maintenance of
equipment was the same. Now, maintenance of way and structures being approximately 20% of a railroad's expenses, it would minimize the difference if compared with what it would be if the formulæ were different throughout all its divisions.

So it would depend upon the extent to which those two old formulæ differed, as to the value of the figures produced by this equation.

The Court: Let me ask you this, so that I may understand: Suppose the first formula was based upon expense of maintenance of way and structures, and based solely upon the revenue theory; and that the other was based upon its use: Then, of course, the first would not be of any value at all.

A. No, sir.

Q. But if, on the other hand, it is based partly on the revenue theory, but the figures indicate also the use which has been made, and now he adopts use entirely, then he could use the former formula by eliminating that part which affects revenue?

A. Yes, that is partly true. But I would like to explain a little further, if I may.

The Court: I want to get it as clear as possible.

A. There are really involved in this case three formulæ, "A, B

and C." "A" is one of the formula which was used in 1907 for one, two or three months.

"B" is a formula used by Mr. Douglas for part of that period.

642 "C" is a new formula which is before us today.

We want to equate for 1907 on the basis of the present formula without going through the immense detail of work which would be necessary in order to work it out item by item. So we find, in 1913, for example, that formula "B" and formula "C" have the relation of 95 to 100 to each other. Formula "C" produces 95% of the results of formula "B".

Now, when we go back to this formula which was worked out on the two formulæ, if "A" and "B" are radically different, and we apply the relation which existed between "C" and "B", we get a result which is wrong, and the erroneous result will be in proportion to the difference in the formulæ "A" and "B". Isn't that your question?

The Court: Yes. Or in proportion to the errors that may be worked out. It would be the same thing, if it is an error in the formula or an error in the calculations?

A. Yes, sir. Now, if those errors are corrected, and these apportionments which were made in formula "A" are reapportioned to the basis of formula "B", and then this equation applied to that result after the corrections are made, then you have a perfectly good result.

The Court: Then you would not have but two formulæ, you would eliminate one?

A. Yes, you would eliminate formula "A".

The Court: Speaking of errors in calculations, if the formulæ in both cases are identical, and there are in the first one certain

643 errors in calculation; and in the second one, without discovering them, they are used as correct calculations, of course certain errors would be in there?

A. Yes, sir.

The Court: But if discovered and corrected, they would not be repeated?

A. That is true.

Mr. Hill: Suppose you had too much expense assigned by a clerical mistake to maintenance of way or maintenance of equipment, it would, of course, throw the whole equation out of gear to the extent of that error, no matter what formula is used, would it not?

A. That is true. Those who have had experience with figures know there are always errors. But where the figures are compiled in good faith, you will find errors both ways.

Q. And one will compensate for the other?

A. Yes, usually.

The Court: To go back for a moment to those terminal charges on that Ft. Smith shipment referred to a little while ago, let me understand that. Suppose a shipment is made in Texas over the Texas & Pacific to Chicago, Illinois. The Texas & Pacific receives it in Texas and hauls it to Arkansas, and there delivers it to the Iron Mountain. The Iron Mountain hauls that same car through Arkansas and Mis-

souri to St. Louis. At St. Louis it is then delivered to the Chicago & Alton and they carry it to its place of destination in the city of Chicago, state of Illinois. Now, in dividing the freight collected,
644 is there any extra compensation allowed to the two terminal roads, or does the center road which merely took it from one railroad and delivered it to the other railroad get the same proportion of the freight, according to its mileage, as the other roads do?

The reason I ask that is because there was considerable evidence in the other case on that subject. Among others a gentleman named Lincoln, a traffic agent in St. Louis, testified.

A. Yes, I know him.

The Court: And several of the officials of the railroad connected with the transportation department, traffic managers, etc., testified on that subject.

Mr. Hill: Mr. Doddridge testified on that.

The Court: There were several who testified, and for that reason I wish to ask that question so it may be in this record. Would you prefer to have that answered by a traffic man?

A. It is largely a traffic question.

The Court: But are you sufficiently familiar with it to answer?

A. Yes, sir, I think I am. While the traffic men make those divisions we have to apply them and we know what they are.

The Court: Go ahead, then.

A. Some of those divisions are on a mileage basis, but most of them are not. They are a matter of contract between the traffic men, and in many, many cases there are distinct arbitraries allowed for the terminal service.

645 Now, when I was with the Minneapolis & St. Louis Railroad as auditor, we had a terminal charge on every car that went in and out of Minneapolis, and it passed over three railroads, just as you speak of in the illustration you gave. It went over the Minneapolis & St. Louis from Minneapolis to Albert Lea, and from Albert Lea to West Liberty on the B. C. R. & N., and on the Rock Island from West Liberty to Chicago.

Now, we take out our terminal charge on every shipment that went out of Minneapolis, and divided what was left on a mileage pro rate. So the B. C. R. & N. did not get its mileage allotment of the pro rate on its full haul, but its proportion of what was left.

Q. How about the Rock Island, the other end of the terminal?

A. I do not recall whether there was a terminal at Chicago or not, which was taken out.

I do recall this Minneapolis terminal because the B. C. R. & N. claimed it was too high. Of course, our traffic man kept it as high as he could, because he claimed the additional expense incurred in Minneapolis justified us in retaining that terminal charge, and that was especially true of the Minneapolis & St. Louis, because its haul was not so very long, being only 112 miles.

But the actual division sheets that we have on file and which we are using, are both ways. Sometimes a road is able, through control of traffic, to say, "We will divide this on a mileage pro rate, or

we won't join you in the through rate." It may have other
646 traffic where it is a terminal line and where it is desirable to make both of them, from its standpoint, on a mileage pro rate.

Mr. Hill: It is controlled by the division sheets between the different individual roads?

A. Yes, sir.

Mr. Moore: Between the different lines?

A. Yes, sir, and a good, strong traffic man is like a good strong other man, he is going to make good contracts.

Mr. Hill: Every road in making its divisions either by a specific terminal charge, like you have just instanced, or else by a proportion of the rate, attempts to take care of that terminal charge?

A. Yes, sir.

Q. And has it reflected in the rate that is made for the whole haul and in its proportion of the rate with the other carrier?

A. Yes, sir.

Q. I want to discuss with you an old friend of ous, and that is the station switching for local trains. I know it was asserted, and I believe established in the Iron Mountain Case, that the additional mileage of the local train on account of station switching was about 50%?

A. Yes, sir, that was the testimony of the state's witnesses, as I recall it.

Q. I believe there was probably some controversy over it, but not very serious. It is a considerable item, whether that particu-
647 lar item is right or not, is it not, Mr. Nay?

A. Yes, sir.

Q. It is a recognized factor?

A. Yes, sir.

Q. In other words, if a local train has a run of 100 miles it will perform 150 miles in making that run, on account of the switching that is done by it at stations where no switch engine is maintained?

A. Yes, sir, assuming that 50% is the right per cent.

A. Whether it is or not, it is recognized by every one as either that or some other large percentage, isn't it?

A. Yes, sir.

Q. At page 12 of the formula you classify "Tracks: Train tracks, consisting of main and passing tracks are assigned exclusively to line:" I believe you said yesterday that unquestionably the main track and passing track were used for some portion of this switching?

A. The main track especially. I do not think the passing tracks are ever used for that purpose except perhaps in emergency cases.

Q. If I recall correctly the testimony in the Iron Mountain Case was that it was very considerably used for that, particularly at small stations?

A. It may be, but ordinarily they try to keep the passing tracks open.

Q. As I understood the testimony they were used indiscriminately?

A. When you speak of "passing tracks," I am thinking of the tracks that are strictly passing tracks, not sidings. They
648 have certain passing tracks, a long track, put in there for meeting points, not for side tracks or house tracks. That is the class that is referred to in this formula, and those are the tracks that are kept clear so they may be used for meeting points.

Q. But occasionally they are used for switching?

A. Well, my judgment would be they are rarely used for switching.

Q. The main tracks you know are constantly used for switching?

A. Yes, sir, they are used very frequently for switching. But that would be especially at the intermediate stations I should think, where the main tracks are used for switching.

Q. Those items would not be used at all, that switching would not enter into this at all?

A. No, sir, they would do their switching in the yards.

Q. That would not be performed at the station, where there was a switch engine as a rule, so this inquiry refers to switching done at small stations, as I understand it?

A. Yes, sir.

Q. At those stations the main track is used constantly for switching, is it not?

A. It is used constantly in this sense: Every day as the locals go over the road, wherever there are cars to be picked up or to be set out, the main track is used in connection with the other tracks for that switching service.

649 Q. That main track, whether it is used for switching or not is classed entirely as "line?"

A. Yes, sir.

Q. And the work of this local train on that track is not cared for as I see it in this formula.

A. No, sir, it is not. And that is one of the cases where, as I said this morning, this formula favors the state, because I think if a proportion of that was assigned to "terminal," the state and the intrastate, too, would be charged with a greater portion of expense.

Q. That would be a matter of mathematics. It might work out that way and it might not. These local trains handle 85% interstate freight. So I don't know whether it would work out this way or not. That is what the statistics are in this case. But I am not discussing who it favors and who it does not. But I am calling attention to the fact that here is a use of the track not cared for in this formula.

A. That is true. But, Judge Hill, it is cared for indirectly in this way—as I mentioned yesterday—by offsetting the use of the terminal tracks in line service.

As, for example, when a train heads in or backs out on one of those industry or house tracks, as may happen. That is a strictly "line" service. Or in meeting another train and getting over the road. Yet it uses the track or tracks, the entire maintenance of which is charged to terminal service. So there is an offset.

650 Q. That might possibly offset your passing track because you say that is occasionally used for switching?

A. Oh, it would much more than offset the use of the passing track.

Q. Have you any data on that?

A. That is a matter of general impression, that one item would offset the other.

—. ——.

A. I have no more data on that than on the use of the main track in the switching service.

Q. Except you know that is a constant matter, and the other is an occasional matter?

A. Well, I know just about as well that the other is often.

Q. You think the industry tracks are used for line service as much as the main track is used for switching service?

A. Why, I don't know whether they are or not. As I say, I have no data.

Q. Evidently it is not the judgment of your committee that that was the case, or you would not have classified those tracks this way?

A. As I stated yesterday, and it is stated in the front of the formula, the classification depends upon "the substantial use" in any class of service; and the occasional use in some other class of service does not take it out of its original class.

Q. You would not claim, I do not understand you for a moment to say, that the case of the main line for switching by local
651 trains is an occasional use?

A. I claim it is not a substantial use of the main track.

Q. But you admit it is a constant use?

A. Every day. But, Judge Hill, the amount of that main track, the quantity of it which is used is just a few hundred feet out of your whole length of railroad,—just a few hundred feet running down to the end of the switch and backing in again. It is so small. It is constantly used every day, at that one point.

Q. The whole length of the yard limits, whatever that may be. It would be used the whole length that the switch tracks and other tracks are used?

A. No, sir, it would not be used constantly for the whole length of the yard limits. Because, if a train was going to set out a car or pick up a car, it would not run clear out to the switching limits; it would run just past the point of the switch.

Q. But it would be the whole length of the switches there in use, wouldn't it, necessarily?

A. No, sir, because it would go in just one end of the switch.

Q. I am not a switchman, and neither are you; so we will just drop that there.

A. I have watched that process so many times, and I know they do not use the switch tracks from one end to the other for the purpose of setting out or picking up a car.

652 Q. Mr. Nay, I believe you testified before, if I remember correctly, that you thought that two and one-half times mileage counted for a locomotive as contrasted with the other equip-

ment, was not enough to compensate for the damage done by the locomotive to the right-of-way: Is that correct?

A. I think that is right.

Q. You remember the state put it in at two and one-half times, and you thought the damage could be assessed higher than that. I don't remember whether you put in any definite figure or not, but you stated that two and one-half times was not enough.

A. I think I recall that it appeared that was based on a locomotive having twenty wheels and a car having eight, and twenty was two and one-half times eight, and they thought that was the correct basis——

Q. That and the weight was considered?

A. Yes, sir. That a locomotive was a heavier piece of equipment. It is a little hazy in my mind just now.

Q. I haven't looked it up myself, but you said, I think, that a locomotive would do more than two and one-half times the damage done by a car by reason of its weight?

A. Without looking it up, I think you are right.

Q. At any rate, it will do two and one-half times the damage?

A. I know I objected to that relationship, but whether I said it was too much or too little I don't recall.

Q. You said it was too little, I feel sure.

653 The damage done to the way by this local locomotive in doing this switching that we have referred to is now cared for in this formula, in addition to the ordinary damage done by the balance of the train, is it?

A. You mean the damage to the main track?

Q. Yes, and the passing tracks, also.

A. Well, the entire passing track is charged to terminal expense, and also the entire maintenance of that track is put into "terminal."

Q. You are mistaken about the passing track there.

A. Did I say "passing?"

Q. Yes.

A. I didn't mean that. I meant station tracks.

Q. My question refers to classification "A," "Station tracks consisting of main and passing tracks." I think that is allowed for in this formula in this way: That the division of the expense between passenger and freight in the first instance is on an engine ton mile basis. The engine which makes the mileage in local switching, the engines which do the local switching, are allowed an arbitrary mileage of six miles per hour, under the rules of the Interstate Commerce Commission; and while doing this switching service they are making this mileage allowed for at six miles per hour, which would be computed by using the engine miles of these engines.

Q. That is for switching in yards?

A. It is also for road engines doing switching on the road.

654 Q. In what account do you find that allowed for?

A. That is allowed for in the division of the "line" expenses between "passenger" and "freight."

Q. On the engine miles?

A. On an engine ton mile basis.

Q. What item is that?

A. Turn to "line" expenses, on page 17, Accounts 2 to 10.

Q. You think in that engine miles the miles of the local engine have been added where it has done station switching?

A. Yes, sir, if the rules of the Interstate Commerce Commission have been complied with and I assume they have.

Mr. Hill: Has that been done in this instance, Mr. Hamilton?

Mr. Hamilton: No, sir, that is straight mileage between terminals, of the engines.

Mr. Hill: That is the way I understood it.

Mr. Hamilton: But that is taken care of on the time basis where we split the time of the engines at stations.

Mr. Hill: Mr. Nay was mistaken in assuming that this was divided according to the Interstate Commerce Commission rules as the basis upon which that apportionment was made in Accounts 2 to 10.

Mr. Hamilton: He is correct in stating that the Interstate Commerce Commission required us to do that in reporting switching not charged to local trains, on a six mile basis. But here in the
655 train mileage we have taken the straightway distance between the two points.

Q. It is not included here?

A. No, sir.

Mr. Nay: Then I was mistaken about that.

Mr. Hill: I thought you were, but I wanted to be certain as to what our facts were here.

Is this damage done to the way by the locomotive and the extra mileage of that locomotive doing the station switching, which has been estimated to be at least 2½ times that of the other cars of the train, taken care of anywhere in this formula?

A. I don't see where it is, just now. I think the amount is very small.

Q. Oh, yes, it may be very small.

Mr. Moore: I would like to ask a question there so as to save time:

Q. Is not that taken care of in the time?

A. I do not see that it is, Judge Moore, because Judge Hill is simply referring to the maintenance of these main tracks; the maintenance of the main track all goes into "line" service.

Of course, this is a very small amount and I do not think the result of the case would be changed whether it is in or out. A little extra switching over a few feet of the track at each side of the switch would amount to very little.

Mr. Hill:

Q. It is not here, whether the amount is big or little: Isn't that true?

656 A. Oh, yes. The formula has not covered every little item.

Q. I don't think it has covered some of the big ones, but we may differ about that.

A. Yes, we may.

Q. The next item I want to call attention to is "Locomotive repairs" item 25, on page 13, I believe that is.

A. Yes, sir.

Q. This item is divided between "line" and "terminal" in the ratio that time in "line" service and time in "terminal" service bears to the total time on road: That is correct, is it not?

A. Yes, sir.

Q. I understood from you yesterday that that time study was evolved from Exhibit 2-H?

A. The form in the upper left-hand corner is R-7, is it not?

Q. Yes.

A. Then we have the same blank.

Q. This is the sole basis for making this division of locomotive repairs, is it not, the reports derived under this form R-7?

A. I would rather Mr. Hamilton would answer that as to whether this is the sole basis, because I have not been through all these exhibits in detail.

Q. Is that true, Mr. Hamilton? Does that give you the sole information upon which this apportionment was made to steam locomotive repairs?

Mr. Hamilton: Between "line" and "terminal?"

657 Q. Between freight and passenger, to begin with, and then between line and terminal.

Mr. Hamilton: No, sir, between freight and passenger, that afforded a basis of division between "line" and "terminal" but they do not separate between "freight" and "passenger" on that.

Q. The point I am inquiring about now is "line" and "terminal." This is the sole basis for the line and terminal division, is it?

A. Yes, sir, of road engines, not yard engines. That includes some switch engines and they are divided——

Q. That is included here?

A. Right after the cost is determined, otherwse it is divided between line and terminal.

Q. On the basis of this exhibit?

A. On the conductor's report of his "line" and "terminal."

Q. I see that form requires the conductor to give the hour and minute he arrived at each station, and the hour and minute he departs from it. The "total elapsed time of stop," "the time of stop account of train operation," and the "balance of stop or station service." That seems to be all that relates to this proposition. The next column is on the terminal.

Now, in the definition which is to guide the conductor on his time study, I find that column headed "time of stop account of train operation" shows the total time consumed in taking coal

658 or water and meeting trains, getting orders, chaining up cars, switching accounts, etc.

A. Station work.

Q. "In column headed 'Balance of stop or station service', show the total time consumed at each station in switching cars taken or left at the station, and doing other station switching, loading or

unloading freight, passengers, baggage, mail and express, or any other station work."

Of course, that latter part would not be applicable to our present inquiry. We are running a local freight train now.

Now, the time that the local freight would be noted as doing station work there would be for switching, loading and unloading freight, wouldn't it?

A. To the local freight?

Q. Yes.

A. Or any other station work?

Q. What would "any other station work" be beside that mentioned here?

A. It might be spotting cars.

Q. For the through trains?

A. No, sir, what I mean is a car of coal, say, where a man has a little coal house——

Q. Would not that be included in switching?

A. It might or it might not be. That is the thing that came to my mind first.

Mr. Hill: Mr. Hamilton, do you know of anything else that that station work would be?

Mr. Hamilton: I cannot think of anything else that covers it.

659 Q. "Other work" performed there would be the switching and loading and unloading of cars, wouldn't it?

Mr. Hamilton: That is all the local does.

Q. Mr. Nay, suppose the local is at a station two hours, one hour engaged in switching and one hour in loading and unloading freight. Then this report would show just two hours there wouldn't it, at that station; and those two hours would be ascribed to terminal service, wouldn't they?

A. Yes, sir.

Q. That would be the only record you would have against that local of the terminal service it did at that particular station?

A. We would have the record. That time would be recorded in this column "Balance of stop or station service."

Q. I am assuming in my question that half was spent in switching and half spent in loading and unloading freight.

A. Yes, sir

Q. Then when you use your time study to divide these locomotive repairs, you have used, if my illustration is correct, one-half of that time when the locomotive is still, have you?

A. That is assuming that the locomotive did its switching and then stood still while they unloaded the freight. But the locomotive is under steam all the time, even while it is resting, although it is not actually moving. While the wheels are not turning it is still in such condition that it is making repairs necessary to be done at some other time.

660 Q. That is true. But the greater part of the repairs due to it is from running and not from standing still under steam: Isn't that true?

A. That is a mechanical question. I assume, of course, if a locomotive is kept under steam and never run it would be self-evident there would not be the same amount of repairs as if it were running. But I think your assumption as to the method of handling the station service is, to use a lawyer's phrase, "rather violent;" because if you go out and watch that kind of service performed you will see the engine crew and one or two brakemen will go and do that switching, while the conductor and the other brakeman are unloading the cars which have previously been "stopped" at the platform.

Q. It happens very frequently that way, and also according to my information, that they spend a good deal of time there loading and unloading when there is no switching to be done at all?

A. That is true.

Q. To get at my proposition (and this must be worked out) I am assuming that one-half is spent in switching and one-half in loading and unloading.

A. Yes, sir, but the locomotive is used in station service even if it is used in loading and unloading.

Q. But this is a question of repairs.

A. The repairs are made as nearly in accordance with
661 the use in the service in which it is engaged as it is possible to get it.

Now, the "time at the station" is the relative use of that engine between the two classes of service, the terminal service and the road or line service. And I think the division is perfectly fair.

Q. I understand you do, but I am getting the facts about it. That time study is made on the combination of the time that the engine spends switching at that station and also the time that the engine stays at that station while the car is being loaded or unloaded.

A. Yes, sir, there is no question about that.

Q. This locomotive repair is worked out on this time study proposition, but when you strike your passenger car repairs and freight car repairs you depart from your time study, don't you?

A. We do not use the time study in connection with the passenger and freight car repairs?

Q. You got the opinion of these excellent gentlemen composing the Western Association of General Managers, extending from the Mississippi River to the Pacific Ocean and you took an average of average opinion there and worked out your "line" and "terminal" according to that?

A. Yes, and I know of no better way at the present time. We have done our best. These men are men of long experience.

Q. Is it a good idea to take average conditions of affairs
662 on roads from the Mississippi River to the Pacific Ocean, where conditions are totally dis-similar and take an average of those to apply to the Frisco in Arkansas or the Rock Island in Oklahoma?

A. I have not seen the—yes, I have, too.

Q. Mr. Hamilton said it was all these roads from the Mississippi River to the Pacific Ocean.

A. I think that is right. But I believe if the list was examined you will find probably that 75 to 90 per cent of them have had experience in this same territory contiguous to Arkansas.

Q. That does not appear here and all I know is that these general managers of roads from the Mississippi River to the Pacific Ocean have given these opinions and you have averaged those opinions. Now, you know operating conditions in the Rocky Mountains, and operating conditions down through the desert are radically different from those in Arkansas.

Q. I would not say so as to the stopping and starting of passengers trains, for example. They are probably pretty much the same.

As to the damage to freight cars in the yards, when shunting them around in the yards, and stopping and starting at stations with the air brakes we have now, I grant you there are some differences. But not so radical as to disqualify them entirely from applying them to the Arkansas conditions.

663 Q. So you remember in the tables we had before how much percentage was allowed for grades and for curvature? I know those were considerable items that entered into this problem. I know those are factors to be considered, grade, curves and distance, but I don't know how much. But you think it would be fair to take the general averahe of all those general managers throughout this country and work out a percentage on that?

A. We were getting the very best light we could. We knew of no way to measure terminal repairs to freight cars. It would take nearly all our earnings to make a time study for each car, as we can do for the locomotive. And even if we made a time study it is still a matter of opinion as to what proportion of the repairs occur in the switching service at the terminal and what proportion on the line.

Q. These "line" expenses referred to in item 34, freight car repairs on page 14, show 36.03% to "line."

A. Yes, sir.

Q. They are divided between local and through trains on the gross ton miles and subsequently between state and interstate on the net ton miles, aren't they?

A. Yes, sir, that is my understanding.

The COURT: Going back to the question submitted to the different general managers of the country: Do these general managers usually remain forever with their roads? Here in Arkansas they

664 used to change so rapidly that we could not keep up with them.

A. This is no exception. They do change about. That is a very great point. These men, no doubt every one of them, have had experience in different railroads.

Mr. Moore:

Q. Do not the cars also change around and cover all this territory?

A. Yes, sir. Of course, the headquarters of the General Managers' Association is in Chicago, which is in this contiguous territory. And, certainly, while we have some from the Pacific Coast the majority of them will be right around in our own neighborhood and, as

Judge Trieber said, they do change about; and these men have had experience on other railroads, and some of them on many railroads.

The Court: Mr. Hays, I remember, was President of the Southern Pacific, and I remember when he was in charge of the Iron Mountain Railroad here in this state at one time.

Mr. Moore: And then he was on the Canadian Pacific.

The Court: He was on the Grand Trunk when he died. I believe it was against the rules of the Iron Mountain Railroad for anyone to remain over six months.

Mr. Hill:

Q. This division of the line expenses between through and local and between state and interstate on this mileage basis we have referred to, ignores the fact that the local train has made 50% more mileage than the through train, does it not?

Mr. Moore: Where do you get that 50%, Judge Hill?

Mr. Hill: We discussed that a while ago and Mr. Hamil-
665 ton said yesterday that he thought it was approximately correct, and so does Mr. Nay.

Mr. Moore: Is it divided on this formula?

Mr. Hill: No.

The Witness: No, that 50% in the old case was put in to provide for this terminal switching which is allowed for here on the time basis which we have just discussed, so if we did allow 50% additional for mileage you would be duplicating it——

Mr. Hill:

Q. That was done on the locomotives, but here when you come to your cars you don't do it: That is exactly the point I am calling your attention to now.

A. I beg your pardon, I think we do it.

Q. Where?

A. In this 63.97% that is apportioned to the terminal.

These men who have given us this opinion have taken into consideration this switching at these various stations; they have taken that in, and for that reason they have said that repairs to cars, such a large proportion of it, goes to "terminal," as compared with the proportion that goes to the "line."

Q. As I understand this letter ballot proposition from these gentlemen, it was as to freight car repairs; that was the proposition, as to freight car repairs?

A. And passenger car repairs.

Q. Yes, but the matter they were discussing was freight car repairs?

A. Yes, sir.

666 Q. It was not local car repairs nor through car repairs?

A. Freight car repairs.

Q. They have said of these freight car repairs that 36.03% is "line?"

A. Yes, sir.

Q. You have divided that between through and local trains on a mileage basis, and between state and interstate on a mileage basis?

A. Yes, sir.

Q. As I see it, when you brought in your local train there, you have ignored the fact that the local train has run 50% more than the through train in making the same number of miles?

A. I don't understand that the local train does run 50% more miles.

Q. You can assume 50% as an arbitrary amount: You stated it was a considerable item and was recognized as a considerable item, whether 50% is the accurate factor or not?

A. But I said that in this case no such allowance had been made in this formula, and that no such allowance would be made when a formula is worked out to get the actual expenses; there would be no allowance like 50% additional miles, or engine two and one-half times a car.

Mr. Moore (To Mr. Hill): You stated just now that this expense was divided according to mileage: "Terminal is not, because 63.90% terminal is not divided that way.

Mr. Hill: I am talking about the "line," Mr. Moore. (To
667 the witness:) We are talking about the "line" expenses?

A. Yes, sir.

Q. That is divided between your local and through trains on the mileage basis?

A. Yes, sir.

Q. The local train runs more miles than the through train in order to get over a given division, does it not?

A. I don't think so.

Q. You don't?

A. No, sir.

Q. All right, if you don't think so, we get to a point of difference right there.

A. Yes, sir.

Q. Assume, for the sake of my question, that it covers more miles in making a given distance, than the through, on account of station switching——

Mr. Moore: Is it the car you are switching, or the engine?

Mr. Hill: The station proposition is the proposition we have thrashed over here in two cases.

The Witness: Yes, sir; say we have a division 100 miles long and here is a car that goes from one terminal to the next: That car travels only one hundred miles, it don't travel one hundred and fifty miles.

Q. Is not that car switched up and down that place?

A. No, sir. If that car is going to some point on the line it is set out at that station and it may travel a hundred feet or two hundred feet more, but nothing like 50%.

668 Q. Say 10%, I don't care what per cent: The cars in the local train travel more than the cars in the through train, that is my proposition: Is not that a fact?

A. It is just to the extent that they travel over sidetracks where they are set out and picked up.

Q. Is not the train shunted backward and forward when you take the car out and put it to a station?

A. No, sir, they don't shunt the whole train out.

Q. They shunt part of it?

A. If the car to be set out is five cars back from the engine, of course the four cars in front of that will move up and down with the engine.

Q. I don't care anything about the percentage, but you recognize it as a fact that a car on a local train will travel more miles in going over a division one hundred miles long than a car on a through train, don't you?

A. Some of them will, yes, sir; not all of them.

Q. As a general proposition, don't they travel more?

A. They may travel more, but then the through train will do some switching, of course, and to that extent those cars will travel somewhat more than just the distance between the terminals, but it is just the difference——

Q. As a rule, the through train does not do any station switching, does it?

A. Not very much, but it does some; it picks up cars and sets out cars.

Q. Those are the rare and exceptional conditions?

A. No, I would not say so.

669 Q. Do you think they do as much as the local?

A. Not as much as the local, no, sir.

Q. I care nothing about the percentage, the only proposition I want is that cars on a local train do travel more miles in going over a division than cars on the through train, as a general proposition.

A. To the extent of this extra switching, yes, sir.

Mr. Moore:

Q. What is the extent of that?

A. It would be very small, Mr. Moore; it would be a few feet at the station, one hundred feet, two hundred feet or maybe five hundred feet at the station where the switching is done, and in some cases it might be a thousand feet.

Mr. Hill:

Q. To that extent, whether it is 500 feet or 5,000,000 feet, that extra mileage made by the cars on the local train is not cared for in this formula, as I understand it?

A. You mean, in the apportionment of the freight train car repairs?

Q. Yes.

A. I think it is cared for in this division of 36.03% and 63.97%. I think that those practical men recognized this "terminal"

service; that they know it much better than you or I know it, and that they took it into consideration in arriving at their conclusion——

Q. Why did they not give an opinion, then, to carry it out into so much for "line" and "terminal" on the local train, and so
670 much for "line" and "terminal" on the through train?

A. It may be improved on, maybe, but they doubtless followed just what their line of reasoning dictated, in arriving at their percentages. We asked them for the relative amount of "line" and "terminal" repairs; that is, the relative amount of repairs to freight cars that was chargeable to the "line" service, and explained to them what we meant by "line" service, by sending them a copy of this diagram which is on the front page of this formula, and this complete explanation of "line" and "terminal" service.

We said to these men, "What proportion of repairs to freight cars is chargeable to the 'line' service under this definition, and what proportion is chargeable to the 'terminal' service?" And this is the concensus of opinion of those men. So I think they have taken in the very element that you speak of, as well as many others.

Q. On the face of it, this shows it is their answer as to the freight cars as a whole, what is "line" and what is "terminal?"

A. Yes, sir.

Q. I see in Mr. Berry's table——

Mr. Moore (to Mr. Hill): Bear in mind, Judge Hill, that Mr. Berry was not undertaking to settle what this difference was, but he simply took up Mr. Wellington's formula and used it in another matter.

Mr. Hill:

Q. In Mr. Berry's table (which I find at page 1743 of the
671 Arkansas Record) he divides the class of service as follows:

| "Class of service. | Curvature. | Grades. | Distance. |
|---|---|---|---|
| Freight and work | 2 | 20 | 36." |

Therefore, the question of the distance that the car runs, according to this, would represent 36%?

A. May I see that? I have never seen that table (indicating Arkansas record)?

Q. Yes. I am looking at the second table, but it may be the first one I should be looking at, Mr. Nay. I believe it is 36% on either one of them, isn't it?

A. (After examining table:) It is only one table; this lower part is a continuation of the upper part. I see that you have put it together to make 100%.

Q. I remember that it was a broad table to start with and that it would not fit on the page. At any rate, the distance run is 36% of the total freight car repair, is it not?

A. Yes, sir.

Q. That is the only point I want to make. How could these

General Managers figure out the local train and through train and say the cars on the local train ran more miles than the other, without having the statistics of the particular roads before them? Isn't it more likely that they just took some such table as this table of Mr. Berry's and applied their own judgment to the contributing causes—so much for distance; so much for starting and stopping; so much for curvature, and so much for grade? Is not that the way these tables were made up?

A. I don't know.

672 Q. You see that is the way Mr. Berry's table is made up?

A. Yes, sir.

Q. You would recognize him as a competent authority, I presume?

A. Well, Mr. Berry has not had much experience in the maintenance of equipment. I know Mr. Berry personally very well, and I know that I am not saying anything about which he would not agree with me when I say that his life has been spent as a civil engineer.

Q. He is chief engineer of your road, is he not?

A. He was, he is not now. He is a high-toned, straightforward gentleman, and I like him, but with all that, I don't believe that his experience in maintenance of equipment has been anything like his experience in construction work and in the maintenance of way and structures.

Q. It is not likely that Mr. Berry would get up a table to read before a society of technical gentlemen without thoroughly preparing himself on the subject, is it?

A. No, sir, I think that is true, but it is equally true that these other gentlemen who were asked this question would give this particular matter just as thorough consideration as Mr. Berry would give it.

Q. I have no doubt of that, but the point I make is this: They have arrived at these figures which you have taken as an average *gere*——

A. Yes, sir.

Q. —and that would be made up of these various elements which technical gentlemen think enter into it—distance so much;

673 curvature so much*?* grading so much; starting and stopping so much, and many other things. They applied that to freight cars generally, but I venture to say they have not differentiated between local and through, and I don't think you have in this formula, either.

Mr. Moore: What warrant have you for assuming that?

Mr. Hill: I think I made that clear to Mr. Nay. (To the witness:) If you differ with me I want you to point out where it is.

A. You have made it clear in your questions, but I have tried to make it clear in my answers, that I don't agree with you, because, as I have said, these gentlemen are practical men; they have worked many years on many railroads, and they undoubtedly took into consideration the elements that you and I have discussed, as well as many others, in reaching their conclusions.

Q. As I see it, they have taken the elements for freight cars and then applied your mileage wherever that would go, because that is one of the contributing causes, but we will let *this* technical gentlemen work that out. I don't know anything about it, and I think your knowledge is hearsay.

A. I will put mine on a par with yours and feel proud.

Q. When you come to the "terminal" part of this same damage, that is divided between state and interstate on the gross tons loaded cars originating and terminating at all stations: I believe that is correct, isn't it?

674 A. On page 34, on the basis of the gross tons of loaded cars originating and terminating at stations.

Q. At all stations?

A. That was locomotives which I read. The freight cars——

Q. I think it is the same on them.

A. Gross tons of loaded cars received and forwarded.

Mr. Moore: That is item 34, page 34?

Mr. Hill: Yes, that is it.

The Witness: Of course, the difference is that the "line" takes into consideration distance, and the "terminal" does not. The "line" takes the gross tons one mile and the "terminal" simply takes the gross tons.

Q. If I recollect correctly, page 1428 of the Arkansas record had that terminal handling of cars on the same basis, or practically the same, did it not?

(To Mr. Hamilton:) You will remember that.

Mr. Hamilton: That was on the basis of cars in and out of the trains.

The Witness: Yes, sir.

Q. (To Mr. Hamilton:) Isn't this the same thing?

Mr. Hamilton: No, sir.

Q. What would be the difference?

Mr. Hamilton: This counts the loaded cars only and considers the element of varying weight; it is the car and the load.

Q. But the basis is the same——

Mr. Hamilton: The principle is practically the same. It
675 is the movement of the cars by the engine.

Mr. Hill (to the witness):

Q. Mr. Nay, you have changed your point of view about that being a sound basis, since you testified in the Arkansas Rate Case, have you not?

A. Which basis was that, Judge Hill?

Q. That terminal handling by the cars.

A. I don't think so, but I may have; this is an age of progress.

Q. I will call your attention to your testimony on page 1830 of the record there. I won't take time to read it now. You have seen a great many good things in the Arkansas Rate Case that you did not see then?

A. As I said this morning, Judge Hill, I found that we are aim-

ing now at the same thing you people were aiming at, and I think we are getting it more accurately.

My recollection is that in that case the division of expense is on the basis of the cars in and out, and I said that this one car would get more handling than another, and that that was not a fair basis. Is that according to your recollection?

Q. That is according to my recollection. I haven't read it over. I just had a note that that had been your position.

A. I still think that is true. In assigning the expenses of switching to the terminal service in this formula we got the actual
676 time that each car was switching.

Q. You said the basis was not sound?

A. Yes, sir, and we have not used that basis in this formula.

Q. The only difference between the basis used here now and that basis, is the using of the gross weight of the car instead of the using of the car itself? That is Mr. Hamilton's statement, and I presume he remembers.

A. No, I don't think that is true, because in those cars——

Mr. Moore: I think there is some testimony on the less-than-carload, too.

The Witness: I think this, Mr. Moore, that Judge Hill and I are not talking about the same thing. I don't believe they divided between state and interstate on the basis of the cars in and out, because you do not have the cars divided between state and interstate.

Mr. Hill:

Q. No, that was between local and through.

A. This division that we are making here is between state and interstate, it is not between local and through. We have taken the contents of the cars and classified them as state and interstate. It is altogether a different proposition.

Q. You divide this item between local and through in the same way?

A. No, sir.

677 Q. How do you divide it between local and through? I think page 28-A is where it is: It is on the ton mile, gross ton mile, and net ton mile.

A. But not on cars?

Q. Yes.

A. That is what I am getting at, that we have not used the car basis in this formula.

Q. Then you have made a mistake if you have not used the car basis for terminal expenses, have you not?

A. Page 28 refers to line expenses.

Q. Page 28-A is the modification.

A. That is line expense, Judge Hill.

Q. Yes, I was wrong here when I said upon the ton and ton mile. I got confused with the line for the moment.

A. Yes, sir.

Q. If you will turn to your terminal division between—no, you don't have any division of terminal between local and through?

A. No, sir, the division between line and terminal is divided between state and interstate on this loaded car basis.

Q. You do not carry your division of terminal expenses of this kind into your through and local trains?

A. No, sir.

Q. You make that division apply only to the line: I believe that is correct, is it not?

A. I think that is right, Judge Hill.

678 Q. I think there is where you probably missed it, if you did not miss it in the Arkansas Case, but that is a matter I want to look into further. I think that is a correct statement of the facts.

You stated yesterday that this time study takes care of the wages of the men that might be at the local station doing this extra switching—I am using that more as an illustration than I am the item itself—and I think you are correct about that, if it is properly worked out, but I don't see why it would take care of the other items that are included with your wages—fuel, water, lubricants, and things of that kind which seem to be classified as wages here.

A. Is this the division between line and terminal?

Q. Yes. The item I want is on page 15, Nos. 79 to 89, wages, fuel, and things of that kind: In regard to that you stated yesterday that if a local train was out longer than the through train the time study at the station would take care of the wages of that local crew, that would be ascribed to the terminal according to the time spent there, and I think that is correct.

A. Yes, sir.

Q. But what about the fuel and other supplies, the water and lubricants that we took up here a while ago? It might occur that half of the time at a station was in the switching service and one-half of the time was while the engine was still while they were loading and unloading.

A. The fuel, water and other supplies, are included in this same group of accounts that you referred to, Nos. 79 to 89, and are 679 all divided on the same basis.

Q. You think the wages would be properly taken care of there?

A. Yes, sir.

Q. But would your fuel, lubricants and water be properly cared for in such an event as I have stated? Suppose it was found that one-half of the time at the station was devoted to loading and one-half to switching?

A. Of course, there would be a consumption of fuel and water going on all the time that the steam was kept up in the boiler. I grant you, not to the same extent as it would when they are running, Judge Hill. It would be foolish to say it would.

Q. Certainly there would be a smaller consumption there against a larger consumption when running.

A. But at the same time that might help to offset some of the maintenance of those tracks used in the terminal service.

Q. Yes, it might, but if we are going into the offsetting propositions we cannot tell where we will stop.

A. But in this case of the fuel and water that would be consumed while the engine was standing still at those stations, that would be a negligible quantity, just the same as I think the maintenance of these main tracks would be negligible. So far, these items that have not been definitely cared for are so small that it would make no difference whether they are put into state or interstate.

680 Q. Fuel is large.

A. I mean the proportionate fuel, the difference between the amount of fuel consumed while an engine is standing still for a few minutes or an hour, compared with what it would consume in an hour while running. That is what I mean.

The Court:

Q. It has to be charged to something.

A. Yes, and as I said before, your Honor, the engine is in the use of the terminal service, the crew and the whole train performing terminal service at that time.

Mr. Hill:

Q. Take Exhibit No. 10, page 3: That is an assignment of the non-revenue traffic to revenue traffic. I wish you would explain the effect of that on the terminal expenses. No, it is page 2 of Exhibit No. 10, Mr. Nay.

Mr. Moore: I think the top paragraph on the next page explains it.

Mr. Hill: It begins at page 2.

A. Well, the effect that it has on terminal service is similar to the effect that it has on the line service, that is to say, on page 1 the terminal service, freight, is treated in the number of tons handled: There are so many revenue tons, so many non-revenue tons, the total of all, and the percentage showing that the non-revenue tons are 20.37% of the total.

Q. Then you take that 20.37% to represent the proportion which the terminal must bear of the non-revenue freight, is that it?

681 A. That means that 20.37% of the freight terminal expenses are in connection with the non-revenue freight, assuming that it costs the same terminal service for non-revenue freight as for revenue freight.

Q. At page 3 it is stated:

"For this reason it is necessary to apportion the cost of non-revenue traffic upon some fair basis, between freight and passenger and line and terminal service. It is believed that to each dollar expended for direct cost of handling revenue traffic, freight and passenger, and line and terminal, there should attach the same relative proportion of the expense of handling non-revenue traffic for the benefit of the revenue traffic:"

What is this non-revenue traffic principally made up of, Mr. Nay?

A. Oh, it is made up of all classes of commodities, perhaps as

varied as the revenue traffic itself. Of course, one item would be coal——

Q. Coal and ties would be the biggest items?

A. They would both be large items. Lumber is another large item. Then there are the supplies that go to the storehouse, castings, spikes, bolts, fastenings; the hardware that is used in connection with the cars, and glass for the windows.

Q. I understand it would be varied, but I suppose coal, lumber and ties would probably be more than all the balance of it put together, would it not?

A. They would be very large items. I have not made a comparison of that kind, Judge Hill. Of course, the steel and iron that are used in the shops would be a large item.

Q. Yes, evidently.

Mr. Moore (to the witness). How about ballast?

682 Mr. Hill: Ballast would be a very heavy item. I overlooked that.

The Witness: Yes, but usually that would be a short haul.

Q. That will illustrate the questions I want to ask you: Is it fair, when those big items like coal, ballast and ties, are principally for the line, to put an equal proportion on to the terminal?

A. Well, in the first place, you don't put an equal proportion on the terminal.

Mr. Moore (to Mr. Hill): That is not done.

Mr. Hill: That is the way I read it on page 3.

The Witness: Turn to page 3 and you will find that——

Q. Equal proportionately, I mean; I don't mean fifty and fifty. You understand what I mean?

A. I understand that you mean that you object to computing the same cost per ton for terminal service on company freight as for commercial freight?

Q. Yes, you see you state here——

A. That is not line: You are speaking principally of line and terminal? I understood you to ask what effect it would have on terminal.

Q. Well, I did ask that and then I reframed the question. You see here at page 3 it says:

"It is necessary to apportion the cost of non-revenue traffic upon some fair basis, between freight and passenger, and line and terminal revenue service. It is believed that to each dollar ex-

683 pended for direct cost of handling revenue traffic, freight and passenger, and line and terminal, there should attach the same relative proportion"——

That is what I am asking you, if that is fair; if when the big items like ballast, ties, rails and coal are primarily line, and principally line expense, you have the same relative proportion of that expense attached to the terminal.

A. But we don't.

Mr. Moore (to the witness): Read your per cents in that table.

Mr. Hill:

Q. It is the same proportion, you use your——

A. Oh, no.

Q. You use your expense basis there for each dollar expended for terminal and each dollar expended for——

A. No; look at page 2: You will find that for the terminal we have 20.37% for non-revenue, and for line freight 14.14%.

Q. I understand. It is not a matter of actual dollars and cents, but here on page 3 is the principle that you go on:

"* * * that to each dollar expended for direct cost of handling revenue traffic, freight and passenger, and line and terminal, there should attach the same relative proportion of the expense of handling non-revenue traffic for the benefit of the revenue traffic."

That is the proposition.

684 A. I think that is fair, and when you analyze the commodities of your commercial freight you will find that lumber and coal are the two big items there.

You will find that the so-called heavy commodities are the big items in your commercial freight just the same as they are in your company freight.

It is not fair to say that the coal and lumber are used almost exclusively in line service. A lot of coal is used in switching service and in the shops.

I did not say "exclusively" but the major part is used for the line.

A. But the major part of the expense is given to line.

Q. Not in the same proportion, is it?

A. I think in a fair proportion.

Q. I know you think it is in a fair proportion, but I want to know what is your reason for saying that is a fair proportion?

A. Because this company freight is handled in the same trains, over the same tracks and by the same crews, along with the other freight, and it seems to me it is fair to assume that it costs the same per ton mile when it is a mixed proposition like the commercial freight.

I don't know what porportion of the Frisco is lumber and coal. I have not seen their commodity statistics. But I imagine it is quite a large proportion.

I do remember that on the Cotton Belt, which probably would have traffic somewhat similar to the Frisco—it might not be the same; they run in the same general direction—50% of their traffic used to be lumber.

685 Q. I believe you stated yesterday that terminal expenses had nothing to do with mileage; that that would be handled on some other basis than mileage. That was your idea, was it not, that you must find some other basis than the miles run for dividing terminal?

A. I think I said in talking about this formula, that when we came to divide the terminal expenses between state and interstate that, as a general principle, we discarded the mileage because the distance did not govern the terminal service. I called attention to

one or two exceptions, I may not have called attention to all of the exceptions.

Q. Here is your traffic on page 35, Account No. 53: You classify that as terminal and yet you divide that between state and interstate on a basis of net ton miles?

A. Yes, sir.

Q. If that is properly terminal, that is not the right factor for it, is it?

A. I would say frankly, Judge Hill——

Mr. Moore (to Judge Hill): That is between state and interstate.

Judge Hill: I know it.

A. —that traffic expenses might be set out in a class by itself, as neither line nor terminal, if you wanted to do that. We felt that they were more nearly allied to terminal expenses, in the matter of preparing the tariffs and division sheets; the instructions
686 for receiving, delivering, way-billing, and caring for and getting the freight to and off the cars, but we did feel, when it came to dividing that expense between state and interstate, that it ought to be divided on the volume of traffic rather than on simply tons and passengers. I still believe that is a fair basis of division.

I would not feel very badly, personally—I am expressing my personal opinion here, as I am all the way through, if traffic expenses were put under "line," although it more properly belongs under "terminal," or if it was put in a column by itself.

Q. It more properly belongs to interstate than it does to anything else if you are going to make a classification of it, does it not?

A. No, I think not. I assume under this division the interstate gets the larger proportion.

Q. Of course, just in the proportion that the ton miles would be you have given Arkansas intrastate and equal share of that, according to the ton miles?

A. Yes, sir.

Q. That expense is nearly all—probably I am going too far in saying nearly all; I will say mostly all, for competitive business, is it not, Mr. Nay?

A. Yes, I will agree with you that it is mostly, but a large share of it is for strictly local business and, of course, there is competitive business which is intrastate, much of it, but——

687 Q. You don't know of any of it on the Frisco line in Arkansas, do you?

A. I am not as familiar with the Frisco as I am with some other roads.

Q. You know the line down there: Can you think of any competitive points, intrastate, on the Frisco?

Mr. McDonough: At Fort Smith.

Mr. Hill (to Mr. McDonough): What are they competitive with?

Mr. McDonough: The Kansas City Southern.

Mr. Hill: I said intrastate, that would be interstate.

Mr. Moore (to Mr. Hill): Mr. Hamilton can answer that question.

Mr. Hill:

Q. Mr. Hamilton, what can you give us as competitive points, intrastate?

Mr. Hamilton: Our Ozark division, running from Mammoth Springs down to Memphis. We cross every railroad that runs north and south in the state except the Missouri and North Arkansas. We cross the Cotton Belt; the Iron Mountain twice, and we are up against the Rock Island at Marion. There is all sorts of competitive business in there.

Mr. Hill: I don't see that that proves that there is competitive business where you cross another road.

Mr. Hamilton: Yes, sir, we can form through lines by other lines, and they do handle business.

688 Mr. Hill: Yes, but does that mean competitive intrastate business?

Mr. Hamilton: Yes, we think so.

Mr. Hill: How much of it would be competitive intrastate business out of the total, Mr. Hamilton?

Mr. Hamilton: I can make you some figures. I know there is quite a bit.

Mr. Hill: Roughly speaking, would you say it is as much as 1%?

Mr. Hamilton: It might be more than that much. I would not want to state it in figures.

The Court (to Mr. Hill): Competitive with what lines?

Mr. Hill: All lines. (To Mr. Hamilton:) I venture to say that the competitive business, intrastate, could not be one per cent.

Mr. Hamilton: I wouldn't like to state the figures, Judge Hill, but I do know that we have some very considerable competition.

Mr. Hill: Between what points would it be competitive, Mr. Hamilton?

Mr. Hamilton: I am just getting out a map. Take it here at Nettleton: I can see the Iron Mountain competing with us for Hoxie business.

Mr. Hill: Between Nettleton and Hoxie?

Mr. Hamilton: Yes, sir.

Mr. Hill: That would be how much of your intrastate
689 business if you got all the Hoxie business and shipped it out on the Iron Mountain?

Mr. Hamilton: I couldn't say, Judge Hill, without having the figures.

There are the lines that run from Osceola across to Leachville, that compete with us on intrastate business. The map shows those. Of course, you understand, Judge Hill, that in order to be intrastate business and competitive business does not mean that the business must be confined to our rails within the state. It will be intrastate if it goes over six railroads.

Mr. Hill: I understand that, I am talking about intrastate business on the Frisco.

I will revise my estimate; I was about to give you one per cent, but after you have gone over that map I think one per cent is too

much. I think about one-fourth of one-tenth of one per cent will cover that.

(To the Witness:)

Q. Mr. Nay, take the passenger station proposition on this same item: How much intrastate passenger business would be affected, and how much of that is competitive? I mean, of your traffic.

A. Well, I don't know the local conditions on the——

Q. Take your road in Arkansas: You have some in and out of Little Rock here, and Hot Springs. Those are the only two that come to my mind just now.

A. Well, we have competitive business at Fordyce with the Cotton Belt, and at Malvern and Camden.

690 Q. There are four points on your road.

A. And Brinkley and Little Rock.

Then there is a lot of competitive business that does not appear on the map: We find time and again cases where a man may live half-way between two railroads, and it is a matter of getting the business, to get him to drive to the Rock Island instead of driving to the Cotton Belt on the other side of him, or to the Frisco.

The Court: How is Newport, is that one?

A. Yes, sir, Newport is another competitive point.

The Court: But that is all on the Rock Island.

A. Yes, but Judge Hill asked me about the Rock Island.

Mr. McDonough: You have Fort Smith and Van Buren.

Mr. Hill: Yes, they are competitors, I forgot them.

Q. Mr. Nay, speaking broadly there is very little of this traffic expense that is incurred or affects the intrastate business, is there?

A. Well, I wouldn't say that. Of course, the last few questions have, perhaps, been on the theory that these traffic expenses had to do with nothing but competitive business.

Q. I say they are particularly so.

A. Yes, but there are a lot of expenses—the tariffs, which are published for the intrastate business as well as for the interstate business; the advertising of excursions, many of them are state excursions.

691 There is quite a bit of expense in connection with intrastate business. Take the fairs advertised in local papers, Judge Hill. You will find a great many advertisements in the local newspapers that are largely for the benefit of the intrastate traffic.

Q. Advertising is almost entirely competitive business, is it not? You don't advertise where you are going to get all the business anyhow, do you?

A. No, I would say not, but competitive business may include a lot of intrastate business. As I have said, the competitive business may not originate right at the station, it may originate in between two lines, by driving in and going to an intrastate point. The fact of it is, competitive business does not mean it is interstate.

Q. But it means that it is largely, if not almost entirely, interstate. The biggest item in that is "outside agencies," is it not?

A. Well, advertising in the passenger side is a very large item.

I don't recall our figures, but I think that with us the advertising is about as big as the outside agencies, Judge Hill.

Q. I understood those are the two biggest items.

A. Yes, they are.

Q. But I thought the outside agencies was a larger item than the advertising.

A. The printing of tariffs on the freight side is one very large item.

Q. That is principally interstate, is it not?

A. Oh, naturally, there is more interstate, because the volume of traffic is so much greater.

692 Q. It developed down here that there had not been any intrastate tariffs printed in six or seven years. They had to have some printed last summer. I think the total cost was about $1500.00, if I am correct in my recollection, divided between the state and all the railroads in the state, so I don't suppose your proportion of that is very heavy.

A. I would like to analyze that account before I make a statement on it.

Q. Mr. Nay, I understood you to say this morning that you thought that this two months' period representing conditions in November and December, 1913, could be fairly used for a period in 1907: Is that correct?

A. That is right.

Q. Have you not changed your views about that subject very radically since you testified in the Arkansas Case?

A. I don't think so.

Q. Did you not object to the use of one month, not only for the reasons you gave this morning, that one month could not represent a six months' period?

A. Well, that month was the biggest month in the year, October, 1907. It is not an average month.

Q. I understand you made that objection, you explained that this morning. You also objected to it on account of these lap-overs. I want you to see just what your views were about it before. Take page 1822, the middle of the page. I will read it:

"A. I should say that no month is representative of any six months, or of any twelve months, and, certainly if I would choose a representative month, I would not choose the heaviest month in the year."

693 Then reading a little further:

"An average month might be more nearly representative than either the heaviest or the lightest month, but I think where actual results are desired, no one month should be taken as representing a period."

An average month might be more nearly representative than either the heaviest or lightest month, as representing a period?

A. Yes, sir.

Q. Again, at the bottom of the page, after objecting to October, you say: "And that no one month should be taken as representative, where we want to obtain accurate results."

A. That is a reiteration of the same statement as before.

Q. Now, take page 1832, the middle of the page:

"A. It is bad enough, I think, to take a period of one month comprised within the six months under consideration here, as applying to the Iron Mountain road. But to take another month nearly a year later, and on another railroad, and use that as a basis, it seems to me is using something that has not the slightest relation to the expenses it is sought to divide."

A. I still believe that.

Q. You object to taking one month to divide a six months' period; you object to taking a month on another road, and you also object to taking a month of a different year, as I understand your statement there?

A. Well, this month that was taken in the different year was on another railroad.

Q. That is one of your objections?

694 A. Yes, but this reads here—on page 1832—"But to take another month nearly a year later and on another railroad"——

Q. Are you not objecting to it because it was a year later as well as because it was on another road?

A. On another railroad, and a year later. A contiguous railroad, in the same period, might possibly have some relation, but in this case we have taken two months, which is twice the period we had before. They are average months of the year, and then, we have had this added experience of actually compiling the four months in Oklahoma and comparing the results for two months, and finding that there was not very much difference for the four months as compared with the two months. I will admit, there may be a slight change there which was due to figuring up these four months, but I still believe that no one month would be sufficient.

Q. What we were figuring on there was one month representing six: There is not any difference in principle between one month representing six months and two months representing twelve months, is there?

A. Well, I think there is when you have the added proof actually worked out and that four months' period produced practically the same results as the two months' period, Judge Hill.

Q. That is getting away from the general proposition that I ask.

695 A. I know, but I can't forget the experience that we have had.

Q. I understand, but take the general proposition: Is it not just as fair to take one month representing the last half of the year, as it is to take the last two months as representing the whole year?

A. No, I hardly think so, because a two months' consecutive period gives a better test for representing six months, or twelve months, or a longer period, than to take one month. I remember, Judge Hill, that the fact that it was one month was not the only objection, that was one of the objections. There were several objections: The fact that it was the largest month in the year, an abnormal month, and

I said in my testimony that if an average month had been taken it would be more nearly representative, as we read it here a moment ago. That would have taken away some of the objections.

Q. Take the bottom of page 1834:

"As I have said before, no one month is representative of a period. It is not fair to consider any one month as representing an entire period."

A. Yes, sir.

Q. That was your view then, is it not?

A. Yes, sir.

Q. Take page 1842——

A. I would like to add just a little to that, Judge Hill.

Q. All right.

A. I don't recall now what all was covered in that one month, but following the sentence you last read at the top of page 1835, I gave this statement:

696 "There is another feature about these accounts which represent the erroneous division on a train mileage basis, and that is that these accounts represent largely payments that are made during the month of October, 1907, but not the damages or losses or injuries that occurred during that month. For instance, in the injuries to persons, in the ordinary railroad practice of settlement, that would represent in very large part payments for injuries that occurred prior to the month in which the settlement was made,"

and so on.

Now, it may be that this referred largely, or exclusively, to injuries, where I made these strong objections, or to casualties.

Q. Would not the objection you make there apply to these two months just as well as it did to that one month?

A. No, not as well, because you have a longer period. Two months is twice as long as one.

Q. You were intending to represent a whole year with two months instead of one month representing six months——

Mr. Moore: Let me call your attention to the fact that some of that will represent a whole year. In the case of the loss and damage, which the witness is speaking about now, the entire year 1913 was taken from the records of the company, and no one month——

The Court: It was taken for this two months' period, too.

Q. Did you not take loss and damage from that, and also from the whole year? I understood you took it from both.

Mr. Moore: Explain how that was, Mr. Hamilton.

Mr. Hill: We are not talking about that now; I am going
697 on that representative proposition.

Q. Is there anything more you want to read?

A. No, I think that is all, Judge Hill.

Q. Then turn to page 1842, the middle of the third paragraph there:

"No one month can be taken as representative of a long period, six months or a year; and the division throughout has been largely on the basis of car miles, which I think is inaccurate;"

and then you go on with other discussion.

Here is another proposition I want to call your attention to: You will find your views stated at page 2019. That was on the state freight and interstate freight moving alike. What I want to call your attention to is the latter part of the page, but I want to get the connection:

"Q. You are assuming there would be a difference in the character of the state and interstate traffic carried on local trains or carried on through trains?

A. Yes, sir.

Q. I believe I can safely say, Mr. Nay, that in this case there have been a great many witnesses who have testified that that traffic goes hand in hand and that there is no substantial difference between them. I think Mr. Doddridge is one who testified to that, principally, preceding this portion I have read to you from his testimony: In view of that fact, is it not true that if that freight is of the same character there is no difference in the cost other than extra terminal and when you get the proportion that is carried on each class of trains you have worked out your problem?

A. I think it would be remarkable, Judge Hill, if the character of the tonnage was the same on both state and interstate and if all the conditions surrounding it would be the same:"

Is that your view on that subject now, Mr. Nay?

A. Yes, sir.

698 Q. You don't believe the traffic goes hand in hand, state and interstate, on the local and the through?

A. Oh, yes, I do believe it, but it is not the same, the character is not the same. There must be a similarity.

I don't remember the testimony that preceded this and just how that came up.

Q. Read a little further, page 2020, and that may give you a thought.

A. I haven't read page 2020 yet, but I think I recall now that there was a difference in the fact that there was a greater proportion of less-than-carload on those roads that was intrastate than there was of interstate; that is, if there was eight or ten per cent of the tonnage of intrastate that was less-than-carload, the interstate would run three, four or five, or something like that.

Q. You developed that a little later?

A. Did I?

Q. Yes; take page 2022:

"Suppose the intrastate traffic is 15% and the interstate traffic is 85%: The testimony is that that 15% and that 85% would move along coincidently: Now, say there were 15% of lap-overs from one month into the other, would not that 10% of lap-overs reach equally into the 85% and the 15% representative of the two classes of traffic?

A. It might, or it might not.

Q. There would have to be a disturbance of that 15% or of that 85%, for the 10% of lap-overs to affect the proposition, wouldn't there?

A. Colonel Moore, you are assuming in that question that the 15% state and the 85% interstate would move coincidently: Do you mean in regard to delays, if one was delayed the other would be delayed; and if one did not get into the auditor's accounts the other did not get into the auditor's accounts?

699 Judge Hill: That is just one of the details.

Colonel Moore: I disagree with you. There is no evidence on that proposition.

Judge Hill: I am assuming that the state and interstate traffic moved coincidently.

Colonel Moore: You cannot assume that from any evidence here so far as lap-overs are concerned.

Judge Hill: I am simply trying to make clear my understanding of the evidence. There is no use arguing it here.

A. I am not positive now, Judge Hill, because in order for these percentages to be of value, supposing every other condition has been met outside of the lap-overs and they are correct in every other respect except the lap-overs: In order for them to be of value, considering the lap-overs, it would be necessary not only for the state and interstate traffic to move coincidently, as I have said, or be delayed coincidently—if there was a congestion, but it would be necessary for them to move coincidently on local and through trains. That is to say, if the traffic is delayed traffic that moves on through trains, it must be delayed in the same proportion as the traffic which moves on the local trains, because only the traffic on the local trains has been computed and the traffic on through trains has been arrived at by deduction."

Do you recall the position you took there?

A. Yes, sir, and as this comes back to me now I think that this started with one of the particular objects to arriving at the traffic that moved on through trains, by the method that was used, and by that method it would be impossible to get like conditions, because in that case the state computed the traffic that moved on local trains and deducted that result from the total traffic which the auditor had in his books, and had something left which was supposed to be the traffic moved on through trains, but which would be an erroneous result. That is referred to in here as the lap-overs, the lap-overs being the difference between what actually moved on the trains and

700 what the auditor took into his accounts on the way-bills.

Q. Further on I see you say on page 2023:

"A. My own personal opinion is, that a year's business should be taken, because there are conditions in each month of the year, and in each portion of the year, that do not exist in other portions of the year. The six months ending December 31, in the southwest are the most prosperous six months. It is the period of the year when the net earnings are greater than in the other six months of the year.

Q. You do not think it would be fair to take the last six months of the year to be representative of the whole twelve months?

A. I think it is not fair to this extent: That the net earnings dur-

ing the six months will be greater in proportion than they will for the twelve months:"

Is that your view now?

A. Yes, sir; that refers to the net earnings, a different subject; it refers to the difference between the gross and operating expenses, and I still believe that it would not be fair to take those six months. If the Frisco had taken the six months ended December 31, 1913, or the six months ended December 31, 1912, as the basis of their case, instead of taking the four years and the four months away back, I would not have approved of the method. But they have taken the test figures for the two months—they have not taken the total earnings for those two months and the total expenses for those two months, but they have found by the detailed analysis of the operating results for those two months that the different classes of traffic, line and terminal, freight and passenger, state and interstate, local and through, had certain relations to each other, and those are

701 the kinds of statistics that can not be gathered from previous records. They must be gathered currently. They have assumed, and I think the assumption is fair, that that relation between the different classes of traffic will be substantially the same in the previous periods as during those two months.

It would be absolutely foolish to assume that the earnings for any previous twelve months would be six times what they were in those two months, or that the expenses for any previous twelve months would be six times what they were in those two months, and that is not assumed. The assumption is that the relation between the expenses of the different classes of traffic will be substantially the same during these previous periods as during the two months.

We have found in another state where the conditions were quite similar, that this was verified, that in the four months' period the relations between the traffic—not the quantity of traffic—are practically the same as for the two months' period.

Q. Turn over to the next page, No. 2024. You can look at it and without reading it all over I think I can state it correctly:

Mr. Kimball made a test on the Cotton Belt in October, 1908, which was not subject to the objection you referred to against October, 1907, as being in the congested period, was it?

A. That was 1909, was it not?

A. No, it was 1908; it was just after the injunction was granted.

702 A. Was it?

Q. This print here shows it to be the month of October, 1909. That is a mistake, because you will find Mr. Kimbell explained he put it in immediately after the injunction was granted.

Mr. Moore: It was in 1908, there is no question about that.

Mr. Hill (to the witness): You were misled by a typographical error there.

A. I wonder if I may change that in this record.

Q. Yes, you can change that. There was no objection to Octo-

ber, 1908, from the standpoint of the congestion, like there was to October, 1907, was there?

A. I don't think so, Judge Hill; I don't recall.

Q. Mr. Kimbell made up his exhibit in that case, as I understand it, practically as you made up your two months' exhibit in this case, as they are made up here——

A. No, sir.

Q. —subject to the lap-overs?

A. No, sir, I don't think so. He only took into consideration the business of the through and local trains.

Q. As far as it went?

A. Yes, sir, as far as it went.

Q. Of course, you have gone into it very much more extensively, but as far as it went, Mr. Kimbell's and yours was the same——

703 Mr. Hamilton: It only extended to the train tonnage and I think, perhaps, the fuel.

Mr. Hill: He got the fuel and wages, actual?

Mr. Hamilton: Yes, sir.

Mr. Hill: And he cut out this question of lap-overs?

Mr. Hamilton: I think that is correct.

Mr. Hill: As I understand it, as far as it went it was identical with your exhibits here?

Mr. Hamilton: As far as it went; that is correct.

Mr. Hill (to the witness):

Q. I have read to you what Mr. Kimbell said about his; he said: "October is rather a heavy month, but for a test of this kind, in my judgment, it fairly represents general conditions.

Q. And would it represent, fairly, a year's business?

A. I should say so. It would represent relatively, the difference between two classes of traffic."

Then the question was put to you and you said you could not agree with Mr. Kimbell on that proposition. That is on page 2025.

A. 2024, isn't it?

Q. 2025 is where you say you don't like to disagree with him but you have to do so.

A. Yes, sir.

Q. Do you still have that view about that?

A. As to one month representing a year's business, and especially the biggest month, yes, sir.

The Court:

Q. Did I understand you to say that what you criticised,
704 or what you said would not apply, was that the gross earnings of one month and the expenses of one month would not be a fair representative of the gross earnings and net earnings for an entire year; that you cannot pick out any one month and take the net earnings of that one month and by multiplying it by twelve say that that shows the net earnings of the year?

A. Yes, sir, that is what I said, and that is what I mean.

Q. But now you say that the calculations embraced in these two months are not taken for the purpose of determining what the business was, or what were the expenses, but merely to ascertain the relative cost of the different items according to that formula that you gentlemen have prepared, and which is used?

A. Yes, sir.

Q. Is that what I understand?

A. That is exactly right, Judge Trieber.

Mr. Hill:

Q. Mr. Kimbell's test of October was the same as this, was it not? It was a test of expenses, it did not have any earnings?

A. He only took the train expenses and wages and fuel.

Q. And the tonnage of trains, and things of that kind?

A. Yes, sir.

Q. You objected to that. The Iron Mountain test of October was the same except that you had further objections to it, about the lap-overs and the congested condition?

A. Yes, sir.

705 Q. That did not go into this question of earnings that you answered Judge Trieber about?

A. No, sir.

Q. Now, I will call your attention to page 2030 of the record in the Arkansas Case. You put in an exhibit of earnings—I think it was in that case, if I remember correctly—of the Rock Island Road for one month and three weeks, before the Interstate Commerce Commission. You were questioned by Mr. Thorne as to whether you regarded that as a fair index. To abbreviate, I will call your attention to what is said at page 2031, which I think will summarize it:

"Q. Now, Mr. Nay, considering the fluctuations you have stated there, do you still think that the net operating revenue, whether it is higher or lower for any given month is any index for the entire year?

A. Yes, sir."

Q. That was your answer before the Commission, and then you continued in our hearing as follows:

"A. You notice that question is 'any index' and I said 'Yes.' But I did not say it was a fair index. I qualified every answer all the way through. There is not a single answer where I say it was a fair index. I said I had given every bit of information I had, up to the very minute, and I gave them a copy of the report sent to the Interstate Commerce Commission, which had been sent to them just the day before. I gave them a copy of the estimated weekly expense which we get out every week, and I gave them the latest information we had."

706 Mr. Moore: You refer to the testimony in another proceeding?

Mr. Hill: Yes, sir.

The Witness: I want to explain that: That was in the advance rate case before the Interstate Commerce Commission. I had given

the Interstate Commerce Commission all of the revenues, all of the operating expenses, train mileage and all the statistics that we had for the ten years ending on June 30 previous to the hearing; then at the time of the hearing I had the figures for one month and three weeks which had come in since. That is to say, the hearing began the first of September, 1911. I had given them figures for the ten years up to June 30, 1911. I had given the month of July, 1911, and I had the estimated earnings for three weeks in August, 1911, and gave them, not one month and three weeks, but I gave them ten years, one month and three weeks' consecutive earnings.

As I said in this testimony right here, if you will read it, I gave them everything right up to the minute, the last figure I had. The question was, "Don't you think good times are coming?" These figures that I had shown for the three weeks of August showed a decrease in earnings, as I remember, and I said, "That is the only index we have. Here are the earnings and expenses for ten years. Here is one month's earnings and expenses, and here is three weeks' estimated earnings. That is every scrap of information I have on the subject, and we are laying it on the table."

707 Q. You were asked if you regarded this seven weeks' exhibit that you put in as a fair index, and you answered it was the only index you had.

A. Yes, sir, as to whether good times were coming or not, not as to what the results were.

Q. You were asked whether it was any index and you said yes, and then you answered me when you were questioned in this case, as follows:—well, you said it was not a fair index—look at the bottom of the page:

"Q. You put that exhibit in there believing it had value as a fair index, did you?

A. No, sir, not as a fair index."

A. By itself.

Mr. Moore: Index of what?

Mr. Hill: That was a net income index of the times that were coming.

The Witness: No, not the three weeks; the three weeks were the estimated earnings only. We had no expenses for August compiled at that time.

Q. It was one month's expenses and earnings and three weeks' income?

A. Three weeks' earnings, yes, sir. You see, we get out our estimated earnings weekly for the weeks ending the 7th, 14th, 21st and the last. In the early part of September when I was on the stand we had already rendered our reports for the first three weeks

708 in August, but had not rendered our estimated report for the fourth week in August. But I gave them absolutely every scrap of information I had. The assertion was, that good times were coming and we did not need the increase in rates because the times were improving, and I gave them that information to show the con-

dition up to the minute that I was testifying, that we had no evidence of good times.

Q. The question is whether you can take these two months as a fair index of the others. You said you couldn't take those seven weeks you had in there, as a fair index, although it was coupled with ten years' business.

A. As a fair index of the future, Judge Hill.

Q. Could you have taken it as a fair index of the past?

A. Then again, this is a different proposition. The index there was as to net earnings, because the question was that good times were coming and we did not need the increase in rates because the revenues were going to be more and that would produce more net revenue.

By what we do in this test period of two months we do not attempt to say the earnings are going to be more or less, but we say that we fix a relation between the different classes of traffic which exists in other periods.

Q. Going to that proposition: I cannot see the logic, Mr. Nay, and I wish you would point it out: Mr. Kimbell put in one month that was a normal month although a heavy month——

A. The heaviest month in the year.

709 Q. —the heaviest month in the year, to represent the last half of the year, to represent six months, and you are seeking here to represent a whole year by two months: I cannot see the logic of saying one is good and the other is bad.

A. Well, Judge Hill, I would like to agree with you on everything; I think it would be about right if I could.

Q. You don't seem to agree with Mr. Kimbell, though.

A. No, and I am conscientious in it, although I may appear to be stubborn.

Mr. Kimbell simply made that one test of train expenses. In this exhibit we have gone clear through every item of expense we could think of. There is not a formula that I have ever had any knowledge of that has attempted the minute analysis of the different classes of expense of a railroad that we have done here in this formula, and I believe that——

Q. Just confine it to——

Mr. Moore (to Mr. Hill): Let him finish his answer.

Mr. Hill:

Q. I thought you had finished.

A. Not quite. I was going to say I believe that when the figures are compiled all the detail that is provided in this formula for a two months' period, it is fairly representative of the business as it runs along from year to year, unless it should be shown that conditions entirely different existed under other periods.

Of course, it would be more satisfactory to you and it would
710 be more satisfactory to me, if we had the results of a whole year, but it would cost probably a million dollars to do it and it would defer this case a whole year. When we have found by actual experience that the four months' result has actually turned out

to be substantially the same as the two months, I feel that I can safely say that the two months are representative.

Q. Here is the proposition I am putting to you: Here is Mr. Kimbell putting in one month of actual facts on the tonnage of the trains and the expense of those trains.

You put in a similar exhibit going to that extent, and further: Now, you say that Mr. Kimbell's would not be a fair representative of that six months' period—we were trying that case on a six months' period; we are endeavoring to try this one on a year's period—yet you say that those same classes of figures, made up in the same way for two months, would be good in this case for a year: I would like to have some explanation of the difference on that.

A. I don't know that I can add anything to what I have already said.

Q. If you are satisfied with it, I am.

Q. Mr. Nay, if I remember correctly your testimony in the other case as to when this panic began to be felt, I think you testified the slump on your road began in November, 1907: Is that right?

A. The very latter part of November.

Q. 1907?

A. 1907, that is right.

711 Q. The operating conditions on your road and the Frisco are practically the same, and the business conditions which would be felt on your road at that time would be felt on the Frisco at about the same time, would it not?

A. Well, I don't know any more than that our road and the Frisco, or the Missouri Pacific and the Frisco, or roads in the same territory would be affected similarly, yes, sir.

Q. Was it the latter part of November that it began to be felt on your road?

A. That is my recollection, Judge Hill.

Q. I thought you said the middle, but I am not certain about that.

A. I think it began generally to be felt the latter part of November.

Q. At any rate, part of November and all of December suffered probably the worst panic we have had in a great many years?

A. Yes, sir, that continued——

The Court (to Mr. Hill): That was not the testimony. My recollection of the testimony is that throughout the country it was felt, but that here it was not felt so much in December on account of the cotton movement. The lumber movement had commenced falling off, but the cotton movement had not, and for that reason it was not felt here until later, although throughout the country it commenced to be felt in December, possibly as early as the middle of November. Later it commenced to be felt here, but not sooner, because of the cotton movement. I am just stating my recol-

712 lection of the testimony.

The Witness: I may be carrying in mind the Montgomery Ward Company, more than I am the railroad business, but of course we have records which would show that without our guessing about it.

Mr. Hill:

Q. Here is your testimony at page 2027, about the cotton movement——

A. When you consider the entire Rock Island System the cotton is not a big factor.

Q. Cotton is negligible on the Frisco?

The Court (To Mr. Hill): He says on the Rock Island.

Mr. Hill: We have a good deal of cotton in Arkansas.

Mr. Moore: Will you allow me to ask Mr. Nay a question, Judge Hill, because I probably will not have time to examine him?

Mr. Hill: All right, go ahead.

Mr. Moore:

Q. There is a sheet which shows what the freight earnings were in the months of September, October, November and December, 1907: State if those earnings are not an index as to when the slump began, and what the character of the business was.

A. The best plan would be to read the earnings.

Q. That is what I want you to do.

A. I will read them in thousands of dollars:

$2,202,000 for September, 1907.

$2,393,000 for October, 1907.

$2,114,000 for November, 1907.

$1,679,000 for December, 1907.

713 The Court: That is Arkansas?

A. That is the Frisco Road in Arkansas.

Mr. Hamilton: That is the entire line.

The Witness: For the entire line.

Mr. Hamilton: Those are the figures of Mr. Oliver taken from our auditor's record, which he gave me the other day.

Mr. Moore:

Q. Do not those figures speak as to when the diminution of business began on the system that autumn?

A. It shows it began in December, or the latter part of November, because November is substantially smaller than October.

Q. There could not have been a slump without its being reflected in these figures, could there?

A. No, sir.

Mr. Hill:

Q. That would confirm your testimony that the slump began in the latter part of November and was felt severely then and in December?

A. Yes, sir.

At this point adjournment was had to Wednesday, July 1, 1914, at 9:30 A. M.

By consent of the parties a further adjournment was taken on July 1, 1914, at 9:30 o'clock A. M. to Thursday, July 2, 1914, at 9:30 o'clock A. M.

714 *Testimony of W. H. V. Rosing Reduced to Narrative Form.*

W. H. V. Rosing testified that he was a mechanical engineer and in charge of the machine shops of the St. Louis and San Francisco Railroad Company, at Springfield, Missouri; that he was familiar with the value of the equipment of said road, and also testified that he was familiar with the causes of injury to equipment and attempted to allocate some of the expenses of equipment to line and terminal as defined in the Formula, Exhibit No. 1, in this case, but owing to his unfamiliarity with said Formula, it was agreed that his testimony is immaterial and is not further set forth.

It is agreed by Counsel hereto that the above and foregoing is a correct statement of the testimony of said witness, and that his testimony as given was immaterial to the issues in this case.

(Signed) JOS. M. HILL,
*Solicitor for Appellants.*
J. M. MOORE,
*Solicitor for Appellees.*

Endorsed: Filed July 1st, 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

T. A. HAMILTON, recalled:

Mr. Moore: I want to ask Mr. Hamilton if he has had a statement made showing the relation between this State and the Frisco System during the years of 1910, 1911, 1912 and 1913?

Mr. Hamilton: Yes, sir.

Mr. Moore: Will you file that as an exhibit?

Mr. Hamilton: Yes I will file this as Exhibit 32.

Mr. Moore: Explain to me what it shows, Mr. Hamilton.

715 Mr. Hamilton: It shows that in the periods indicated the percentage which the coach or passenger carrying car mileage was of the total passenger train car mileage, the total mileage in passenger trains for the entire road, and also for the State of Arkansas. And it will be noted that the percentage of coach or passenger carrying car mileage in passenger trains on the entire line and in Arkansas is very close together, varying not to exceed 2½% and running exactly even in some other places.

This is also true of the baggage, mail and express, and dining car mileage in passenger trains both in Arkansas, and on the entire road.

LITTLE ROCK, ARK., September 21, 1914.

By consent of the parties no proceedings were had on this day, and an adjournment was taken to Monday, September 28, 1914, at two o'clock in the afternoon.

716 LITTLE ROCK, ARK., September 28, 1914.

Met pursuant to adjournment as above on Monday, September 28, 1914, at two o'clock in the afternoon:

Present: Same parties as heretofore.

The following proceedings were had:

Cross-examination of Mr. FRANK NAY, continued.

By Judge Hill:

Q. Mr. Nay, when you testified in the Iron Mountain Rate Case, as I recall it, you stated, in substance, that an accurate division of operating expenses between state and interstate traffic was an accounting proposition which had not been solved and probably never would be: Is that correct?

A. I don't recall that but I would have made such a statement at that time—that mathematically accurate divisions had not been made, and I would make the same statement today.

Q. Didn't you say, "accurately or truly stated?"

A. If you have my testimony there before you that would be the best evidence of what I said then.

Q. I have just notes on it.

A. I could tell you what I meant.

Q. Tell us that. I don't care about the phraseology.

A. I meant this: That there was no known method of accurately calculating the amount of expenses to be assigned to state traffic and to interstate traffic, because the traffic was hauled on the same trains, over the same rails, handled by the same employes, and so forth and so forth. That was the substance of it.

717 Q. Do you think that problem has been solved by this formula?

A. No, sir, not with mathematical accuracy; but we have gotten nearer to a correct approximation.

Q. Do you think it is nearer to a correct approximation than the revenue basis of division?

A. Yes, sir.

Q. You think it improves upon the revenue basis, do you?

A. Yes, sir.

Q. When you testified before you didn't think the revenue basis could be improved on, didn't you?

A. I do not think I gave that impression, Judge Hill.

The Court: What is the object of that? The Supreme Court said it was not correct, so that is the end of it. They may still think it is correct, but that does not help them any.

Mr. Hill: I think I have a right to test the witness' opinion. He is testifying as an opinion witness.

The Court: I do not understand that this case is based upon opinion evidence.

Mr. Hill: It impresses me it is.

The Court: I did not so understand the testimony of Mr. Hamilton. His testimony was that by going through, item by item, they found exactly what the cost of each item was.

Mr. Hill:

Q. Do you think you have found exactly the cost of each item, Mr. Nay?

718 A. No, sir. I want to state this: That the assumption has been, and it is a fair assumption, that on the same train state and interstate traffic costs the same; and in the same station to handle a ton of state or a ton of interstate traffic costs the same. These various items of expense exhibits in that formula have been based upon that assumption—that under like conditions, moved on the same train, handled by the same employes, an interstate ton costs just the same as a state ton. There might be a slight difference. When you speak of "mathematical accuracy" down to the fraction of a cent or two, there would be a difference. But the assumption is, all the way through, that a state ton and an interstate ton costs the same, in the hands of the same employes, at the same station or in the same car in the same train, and so on.

Q. Is that the only assumption in this formula?

A. That is the basic assumption all the way through, Judge Hill.

Q. You stated in the other case, in regard to the formula prepared by the state's accountants, that the method was complicated and was capable of being adjusted or manipulated in different ways throughout the details, that might bring an entirely different result, by manipulation of these various factors in different cases. You stated you were not using the word "manipulation" in an offensive sense, but that it was capable of being changed, or adjusted in different ways throughout the details that might bring entirely

719 different results; that is, by a change from one basis to another basis, or from one factor to another factor. I will ask you if that same criticism would not be true of the present formula?

A. I don't recall that testimony.

Q. I will read from page 1814 of volume 2 of the printed record:

"The method sub-divides the total operating expenses into various subdivisions and treats of each subdivision separately.

The expenses that are grouped in these subdivisions are divided on various bases, many of which have little or no relation to the expenses that are subdivided thereon. The method is complicated and is capable of being adjusted or manipulated—I am not using the word manipulated in an offensive sense—but it is capable of being changed or adjusted in different ways throughout the details, that might bring entirely different results in different cases. The attempt is sought to divide what are termed train expenses between local and through, and those which are not train expenses between state and interstate. And then after the total local and through train expenses are ascertained, by a series of approximation without any actual results being obtained, or without being based on any actual results, the entire expense of those trains is then apportioned between state and interstate on the ton mile basis, which is another approximation of this summary of approximations. It

might or might not produce a fair result. If it did produce a fair result I think it would be a co-incidence or an accident."

That was your testimony, Mr. Nay.

A. I recall that now.

Mr. Moore: Would you like to see it, Mr. Nay?

A. I would like to have the volume before me while being cross-examined.

What is your question, Judge Hill?

Mr. Hill:

720 Q. My question is, isn't this formula subject to this criticism, in that it changes the different bases for different classes of expenses and is capable of being manipulated—not using

A. Yes, the other formula, or this one, is capable of being manipulated so as to bring about different results by changing the basis in one or other of these different factors?

A. Yes, the other formula, or this one, is capable of being manipulated by anyone who wants to produce a certain result.

Q. By the mere change of one of these bases from one to the other.

A. Yes, sir. And the strong feature of the formula here presented is, that that formula was prepared and subscribed to by the members of the Committee before they knew what the results would be. That is the strong feature of the formula here.

Q. Wasn't that the strong feature of the formula introduced in the Arkansas Case, that it was prepared and worked out before any results could be known?

A. I didn't know that.

Q. Didn't you, from your close touch with the case, know that that was necessarily so?

A. No, sir. I knew something about the state's formula, but I did not know whether they adopted that formula before the result was produced or afterwards.

Q. I don't suppose that is material.

A. No.

721 Q. You stated here on page 1815 of this printed record: "And then after the total local and through train expenses are ascertained, by a series of approximations, without any actual results being obtained, or without being based on any actual results, the entire expense of those trains is then apportioned between state and interstate on a ton mile basis, which is another approximation of this summary of approximations."

Do you think the ton mile basis is an approximation?

A. Yes, sir. Because, as I stated a while ago, the ton is handled on the same train, and very frequently a state ton and an interstate ton are in the same car; they go over the same rails; and it must necessarily be an approximation to separate the expense between state and interstate. That basis, whether in this formula or in the other one, assumes it costs just as much to haul a state ton in the same car, over the same rails, as it costs to haul an interstate ton, under like conditions.

Q. In the former testimony you gave you objected to the ton

mile being used as a basis for separating expenses between local and through trains, didn't you?

A. Yes, sir.

Q. You use it in this case to separate them, do you not?

A. For line expenses only. At that time "line" and "terminal" expenses had not been separated.

Q. Are you not mistaken about that, Mr. Nay? Didn't they divide only the train cost, which is practically the same as your "line" cost, on the ton mile basis?

A. If you refer simply to train cost, then that is true.

722 Q. You remember that formula referred only to the train cost. Don't you remember you criticised the station expenses for taking separate bases; and for yard expenses? All that was cut out in the state's formula.

A. I think what I said before in cross-examination would cover all of that. I said, either in direct or cross-examination, that in this new formula we had attempted to get with a great deal more accuracy what the state attempted to do at that time. I will state that very frankly, Judge Hill.

Q. I understand that. But here is the point: Train expenses then is practically the same—the principle is the same I know—as what you call "Line" expenses in this case?

A. No, sir. Line expenses includes something more than train expenses.

Q. It did in that case. The principal items of line expenses are wages, fuel, water, and so on.

A. I do not recall that you set up line and terminal expenses in that case. My recollection is that the first road that attempted that was the Louisville & Nashville Railroad in their Alabama Rate Case. I think in the Oklahoma formula we were the second road that attempted that sort of thing—that is, the second set of people who attempted it.

Q. That is true so far as the formula is concerned, but what they call "train cost" in that case, which you analyzed very considerably in your testimony, as contra-distinguished from "station ex-

723 pense" and "yard expense" is practically what you call "line" expense in this case: Isn't that your understanding of it, Mr. Nay?

A. I think there is quite a difference, Judge Hill.

Q. There is some difference in the detail, I think. But the principle of it I think is identical.

The point I am calling your attention to is this: What I understood to be your testimony is this, that what was called "train expense" in that case is practically the same as "line expense" in this case; and you condemned the ton mile as a proper factor to divide those expenses between local and through.

A. You mean between state and interstate, don't you, Judge Hill?

Q. No, between local and through.

A. I would condemn the ton mile basis today, as a basis for

dividing between local and through train expenses. You can ascertain your local and through train expenses.

You can get the wages of the men in the local trains and the fuel used in the local trains, and——

Mr. Moore: Judge Hill, have you one of your formulas? Is it in Volume 3?

Mr. Hill: Yes.

Mr. Moore: I think you are mistaken in your statement as to the method of dividing between local and through trains. I would like Mr. Nay to refer to that formula so he can get at it more intelligently than we seem to be doing here.

724 Mr. Hill: Turn to your formula Exhibit 28-A.

Mr. Moore: One moment, please. I would like Mr. Nay to have an opportunity to look at the state's formula in the other case.

(Mr. Nay here examines formula.)

Mr. Hill: Mr. Nay, please look at 29-A.

A. I have it.

Q. State, without going into detail, the method that is set forth there in great detail.

A. I think it is set forth there in detail.

Q. There is a good deal of detail and you can just summarize that.

Mr. Moore: You cannot condense this very much, as it is very much condensed already.

A. I could state the summary, that this is the apportionment between intrastate and interstate.

Q. I understand that, but first it is between local and through.

A. The heading over here is "Apportionment of line freight between intrastate and interstate."

Q. How do you get to it? Read through and you will see the process is first dividing between local and through—as I understand it.

A. Would you mind telling me what part you refer to, to save time?

Q. It states here, "Having ascertained the gross ton miles of local freight trains, through freight trains, and the freight
725 proportion of mixed trains, in the manner outlined above, these results were used as factors on which all line freight expenses, with the exception of wages of train and engine men and fuel and water for road locomotives, were divided between local, through and mixed trains, the mixed train proportion being included with the local freight train proportion for the reason that the mixed train"——

A. Yes, the very train expenses I am speaking of, with the exception. That is what we were talking about.

Q. (Continuing to read:) "The mixed train proportion being included with the local freight train proportion for the reason that the mixed train in its freight functions performs purely local service. Having this divided all other line freight expenses, the wages of

train and engine men and the expenses of fuel and water on mixed trains, were divided between freight and passenger on basis of the respective gross ton mileages in each class of service in mixed trains, as outlined above, the freight proportion of these expenses being then included with similar expenses of local freight trains. Having in this way set up a line freight cost assignable to local and mixed trains on one hand, and to through freight trains on the other hand, the expenses of each class of train (mixed being included with local freights), were divided between intrastate and interstate on basis of the net ton miles of each class hauled upon each class of train."

A. Yes, that last is just exactly what I said before. First I referred to gross ton miles and the things divided on the gross ton miles were the expenses of the mixed trains.

Q. Was that all? Weren't there any other expenses?

A. You are speaking of train expenses, wages, fuel, etc.

Q. There are many other things you class as "line" in that exhibit, aren't there?

A. But your formula here referred to train expenses; that is, the old formula; or, at least, I understand your question to say
726 originally, and I said train expenses would not be apportioned between local and through, because they are ascertainable.

Q. What page are you on?

A. It is Exhibit K, page 2521. I haven't looked at it. But, before we leave this, do you find anything in there that divides train expenses between local and through on the basis of ton miles?

Q. Yes.

A. I didn't hear you read it.

Q. Don't you find it so?

A. No, sir.

Q. We differ about that. You don't mean that "line" expenses are anything but wages and fuel, do you?

A. No, sir, but those were the things we were talking about, the wages and the fuel.

Does not page 2527 help you some where the fuel and the locomotive expenses, part of the train expenses, which was divided in the old state's formula on engine miles, local and through?

Q. I think that is correct.

A. And then, further on, engine house expenses are divided on the basis of engine miles.

Q. Yes. Station expense was divided separately.

A. That was not assigned to local and through.

Q. No, that was assigned on another basis.

A. Then we get to "other expenses" divided on the basis of train miles.

Q. And "loss and damage" was actual, wasn't it?

A. Yes, sir, on the basis of the claims paid.

727 Q. Then you take "supervision:" That was, of course, on the overhead proposition?

A. Yes.

Q. Now, at page 2530 is a method of dividing train cost: That was on the ton mile basis between local and through.

A. I see the percentages but it does not say that those percentages are ton mile percentages.

Q. Yes; it says:

"Assuming that these same relative conditions would exist during the six months ended December 31, 1907, the total ton miles of intrastate and interstate freight handled during that period would have been divided between local and through service as follows:"

A. Is that at page 2530?

Q. Yes, just at the bottom.

A. Oh, yes. But that is a division of local trains.

Q. And through trains.

A. But following right after that same division between local and through, it takes local trains and it divides them between intrastate and interstate—but we are talking all along about dividing between local and through, and I said all along that the ton mile basis was not the proper basis of division.

Q. If that is your opinion I wouldn't care to go any further.

A. Because, as I said before, the other expenses, the wages and fuel, may be determined for each train.

Q. Mr. Nay, turn to page 1824, near the top of the page, I will read you this:

728 —. "The state, for the purpose of getting a basis for separating the expenses of freight and passenger business, accepted the basis used by the railroad for dividing maintenance of way and structures expense, which is on a train mile basis, I think: Is that correct?

A. Yes, sir.

Q. If one were going to attempt to divide these expenses in this way between passenger and freight service and between local and through trains, is it consistent to adopt one basis for one purpose and another basis for the other purpose, as they have done?

A. No, sir, I think either the train mile basis should be used in both cases, if such a division is attempted, or the car mile basis should be used in both cases.

Q. Have you studied these exhibits enough to have an opinion as to whether the train mile basis or the car mile basis would produce the better results for the interest of the state in this proceeding?"

And then you go off on another proposition. Mr. Nay, is that still your view, that if you use the train mile in one of these places you should use it in the other?

A. This refers to the fact that the state, for the purpose of getting a basis of division between freight and passenger, used the train mile basis; and then between local and through.

Q. Read it all, so you will get the full connection.

A. What we are separating now is maintenance of way and structures.

So that there may be no confusion in the mind of the Court, I will state that we have been talking about train expenses and now we have jumped over to maintenance of way and structures.

Q. Yes, an entirely different subject.

729 A. So we are now coming to a basis for separating the expense of maintenance of way and structures between passenger and freight and between local and through. I said that the same basis ought to be used, if I remember right here, in separating between local and through as between freight and passenger; that they were analogous methods for separating maintenance of way and structures expenses.

Q. Are you of the same opinion now, that the same basis should be used for separating maintenance of way expense between freight and passenger as is used in separating maintenance of way and structures expense between local and through trains?

A. My opinion now is that an entirely different basis should be used. That is, the engine ton mile basis. That is my opinion after a further study of the case. Of course, I understand those questions are mainly asked to show whether we have or have not made progress. I think we have a better formula now, and that all of us have a better understanding of rate cases now than we had then. I think the engine ton mile basis is a better one than the ton mile or the car mile basis.

Q. But that is not the point of my question: You said there that the same method should be used. You said,

"I think either the train mile basis should be used in both cases, if such a division is attempted, or the car mile basis should be used in both cases."

I am asking you if you are of the same opinion now. Not what the basis is, but are those such matters that they must have

730 the same basis for division, to be a true basis?

A. I think not necessarily so now.

Q. You have changed your opinion about that, then.

A. Yes, sir. I have changed my opinion about more than one thing since then, Judge Hill.

Q. You would use a different basis for separating as between freight and passenger than as between local and through trains?

A. If we are attempting to separate maintenance expenses between local and through——

Q. That is what we are talking about.

A. Yes, sir.

Q. What would you say is the correct basis for separating those two classes of expense?

A. Between passenger and freight, I would say in my judgment the engine ton mile basis.

Q. And what, as between local and through?

A. Let me consult this formula. (After examining formula): This chart shows it, I think. It shows that the line freight in this Frisco case has been separated between local and through on gross ton miles. Am I right about that, Mr. Hamilton?

Mr. Hamilton. That is correct, sir.

Mr. Hill: That is my recollection of it. Look at page 28-A.

A. I don't pretend to remember everything. This formula
731 which has been presented by the Frisco Railroad divides the expense of maintenance of way between local and through on the gross ton mile basis, and I don't know how far that differs from the engine ton mile basis; but it certainly is fair to the state. The engine ton mile basis was the basis which was finally decided upon as representing the use, as I testified before. It is intended to include the element of speed. If local and through freight trains run at approximately the same rate of speed the gross ton mile would be an approximately fair basis. I think the gross ton miles, because of the lighter loading of the local trains, would probably assign less to the state.

Q. But that is not the question, whether it assigns less or more. We are trying to get at the true basis.

As I understood you, in your former testimony you said the same basis must be or should be used to divide freight and passenger as was used to divide local and through, so far as maintenance of way is concerned.

A. Yes, that is correct.

Q. You say you have now progressed beyond that and you think the engine ton mile basis for dividing as between local and through is a correct basis. Will you explain to the Court why they should use one basis for the division of one expense and another basis for the division of another expense?

A. I think it is largely due to the element of speed. When you come to divide between freight and passenger, you have the passenger train running at so much greater speed than the
732 freight trains. We found that the weight of the engine reflected the speed of the train. You had to have a heavier engine to pull a train fifty miles per hour than to pull the same train twenty-five miles an hour. By using the engine ton miles we have reflected therein the element of speed.

When you come to the local and through, the element of the difference in speed between the local and the through freight train was not so marked, if there was any difference. The Frisco records will show how much difference there was, if any. And if there was no difference in the speed, then the gross ton miles would be the proper basis, because there would be no need for reckoning the speed. If there was a slight difference in the speed it would cause that slight difference in the result.

Q. On account of the speed, you think they ought to use one factor with the one class, and on account of there being no difference in speed they should use the other factor in the other class?

A. That is the reason that occurs to me now. This thing was thrashed over by our committee, back and forth, and I cannot recall all the reasons. That is what comes to my mind now.

Q. Isn't that nothing more than an approximation between passenger and freight, and no difference in speed between local and through?

A. Sure, it is an approximation. You could not deter-
733 mine to a cent——

Mr. Moore: Look at the record in this case and you will

see it is the result of tests, this difference of speed, whatever it is; it is not an approximation or guess.

A. I thought he meant something else. I did not understand the question. My understanding was, if you compute engine ton miles and assume that represents the speed, isn't there an approximation there; and I say yes. I do not mean the speed of the train; that can be definitely determined; that is not an approximation.

Mr. Hill:

Q. But it is an approximation to take engine ton miles to represent the factor for dividing maintenance of way expense, isn't it?

A. Yes, sir, and it is the closest approximation we have been able to get at the present time. I want to qualify that now. If I had qualified that three years ago you would not be asking me so many questions now.

The Court: Mr. Nay can have one satisfaction; a Judge of the Supreme Court took a very decidedly different view than when he was on the circuit bench. Judge Vandeventer adopted the revenue theory when he was a Circuit Judge, and later when he was Judge of the Supreme Court he decided that was not the correct theory.

Mr. Nay: I never found it humiliating to admit I had changed my opinion or made a mistake.

Mr. Hill:

Q. But what I am getting at now is this, with all these
734 refinements you are using approximations. It is a different approximation, but still it is an approximation.

A. We were talking about maintenance of way, because up to this minute I knew of no living man who can tell you to a cent how much a through train uses the tracks or the fences or the rails as compared with a local train.

Q. But when you testified before you thought the revenue basis was the best basis for dividing those expenses.

A. Yes, sir.

Q. And the state's accountants thought the car mile was the best approximation?

A. Yes, sir.

Q. And now you wipe out those theories and adopt the engine ton mile as the best approximation?

A. Yes, sir, for maintenance of way and structures expenses.

Q. So it is a matter of opinion at last as to which is the best approximation for dividing those expenses?

A. It is a concensus of opinion based on a great deal of study and conferences with other men.

Q. You have no more confidence in your opinion now than when you testified about the revenue theory?

A. Yes—well, I don't know; I think the older I grow the more I doubt—but we think now we have the best thing up to the minute.

Q. I never would question that for a minute, nor did I when you

testified about the revenue theory. But you admitted then it was an arbitrary basis, but it was the best you knew of?

735 A. Yes, sir, at that time.

Q. And Mr. Hamilton and Mr. Ludlam put in the car mile basis and they were as honest as you, weren't they?

A. Absolutely.

Q. And now you come with another approximation, but you are no more honest now than they were then, are you?

A. No, sir.

Q. But isn't it the best approximation of opinion between you gentlemen who have given this subject a great deal of study, that this is the best approximation?

A. I don't want to get tripped on words. Whether it is my opinion or not, it is our best judgment at this time that this is the best approximation to solve a thing which cannot be figured mathematically to a cent.

Q. Nobody expects it to be figured out mathematically to a cent. It is a question resting upon your judgment—if you prefer that word to "opinion."

A. I don't know whether that is a better word or not, but I don't want to be confined to the definition of some particular word.

Q. I am not trying to confine you, but I am trying to get your thought on the subject.

At page 1834 of the printed record, in discussing the Arkansas formula, you said:

"Under the head of 'other train expenses,' I understand are included practically all of the casualty accounts, in fact all of them except loss and damaged freight, crossing watchmen, flagmen, joint facility accounts, and accounts of that nature.

Q. What do you mean by casualties?

736 A. I mean injuries to persons, damage to property, stock killed and injured by trains on the right-of-way. I think that comprises all of the casualty accounts outside of loss and damage, baggage, which is a passenger account, and loss and damage to freight.

Q. It includes also floods?

A. Yes, sir, and clearing wrecks, too.

Q. Proceed with your statement, Mr. Nay.

A. The train mileage has little to do with those accounts. The casualties do not occur with regularity; that is, with reference to the train mileage. It would seem that it would be possible to locate most of those casualties, if an attempt had been made to the trains, in an endeavor to divide them between local and through trains. But a division on a train mileage basis might, as a matter of coincidence bring the correct result. I think, however, it would be simply a co-incidence."

Then there is some more of your answer. I think I have read enough to give you an idea of it. Now, on page 30 of the formula I see these are divided on a gross ton mile basis: Isn't that correct?

A. Between state and interstate?

Q. Yes. Line freight between state and interstate.

A. Yes, sir.

Q. Which is practically though not identically the same as in the Arkansas Case.

A. Those are all on gross ton miles.

Mr. Moore: Those are located to state and interstate as far as possible, and then when ascertained, as I understand it, it is divided on the ton mile basis.

A. Yes, gross ton mile basis.

Q. Gross tons one mile?

A. Yes, sir.

Mr. Hill:

Q. You stated before that train mileage, and I presume
737 ton mileage would be the same, would have little to do with these accounts, isn't that true?

A. Yes, sir. You just read it. But not ton miles.

Q. You said train mileage. You objected to any basis of mileage. Your criticism would apply to that as well as to train mileage, wouldn't it? Read your reasons there and you will see the reason for it.

A. (After reading on page 1834 of the printed record.) Yes, that refers, as I understand it, to dividing between local and through. But here we are not dividing between local and through but are dividing the line freight proportion between state and interstate; and we cannot use the revenue theory any more, so we have the gross ton mile theory; and that is more favorable to the state than the other.

Q. But Mr. Nay, it is not a question of what is favorable or not favorable to the state. We are trying to get at the truth.

A. And that is what we are trying to get at.

Q. You stated in that testimony.

"Casualties do not occur with regularity; that is, with reference to the train mileage. It would seem that it would be possible to locate most of those casualties, if an attempt had been made, to the trains, in an endeavor to divide them between local and through trains."

Does not all your objection to that apply to the gross ton mile as much as to the train mile?

A. Well, that would be true as to any basis that might be adopted.

Q. Certainly any mileage basis.

A. Well, I don't know. A road a thousand miles long would have more injuries than one only ten miles long. And a
738 road that runs twenty trains would have more accidents than one that has two trains.

Q. I am not referring to that kind of mileage, but the train miles and ton miles.

I don't say that I agree with your reasoning. I don't think so, but I may change my mind. I reserve the right to do so.

Mr. Moore: Let me understand something here. Under this item 103, you located it as far as possible?

A. Yes.

Mr. Hill: I object to that. That formula does not say it was located as far as possible. It states it is done on a gross ton mile basis.

Mr. Moore: It is located as far as possible between local and through.

Mr. Hill: It doesn't say so.

Mr. Moore: On which did you examine him?

Mr. Hill: He testified to all three and I called his attention to all three.

Mr. Moore: Look at 101-102; does not this formula provide that those are divided on the basis of the respective gross tons one mile?

A. Yes, sir, that is correct.

Q. Is not the effect of that merely to spread the expense of that over the volume of the business?

A. Yes, sir.

Q. Is not that the object of it?

A. Yes, sir.

Q. Is there any other way conceivable to apportion it?

A. Not since the Minnesota Rate Case decision. There was a way of dividing it upon the revenue basis before that.

739 Q. But that is now out of consideration. Eliminating that, is there any other way to do it?

A. No, sir.

Mr. Hill: Mr. Moore is leading you away. You objected to this train mileage division because casualties do not occur with any regularity. You said:

"If an attempt had been made it would seem that it would be possible to locate most of those casualties to the trains," etc.

And then you go on and speak about the train mileage division in bringing about the result. I say that is something that cannot be brought about on train mileage or ton mileage; that it cannot be done where any kind of mileage is used as the factor. Isn't that true?

A. The unlocated proportion that cannot be located direct to state or interstate?

Q. Yes.

A. It is true it must be located on some basis and the gross ton mile basis has been adopted here as being the nearest approximation we thought proper.

Q. That does not answer my question. Not only unlocated injuries to persons, but damage to stock and damage to property; all those items. My question is, no basis using mileage as a factor, like ton miles or car miles or train miles can be a true factor of division for those expenses.

A. There is no true factor that will bring about an exact result. It is necessary to make an approximation, I say. Does that answer your question?

*A.* Do you think it does?

740 A. I do. You asked if that was a true factor. I say there is no true factor that will bring about an exact result with mathematical certainty, but there must be an approximation; and I

think an approximation on the gross ton mile basis as between state and interstate, for unlocated items, is a fair basis, because it spreads the expense of injuries that are unlocated—that is, where you do not know whether it is caused by a state or by an interstate train, so you assign it on a proportionate basis of the gross ton miles of each kind of traffic, state and interstate, you have spread it as an overhead expense, and that is a fair basis.

Q. That rests in your opinion or judgment as an approximation. It is the best you know of at the present time?

A. Yes, sir. I repeat, it is impossible to determine the unlocated injuries when you don't know whether they occurred in the transportation of state or interstate traffic. For instance, a cow is found out on the right-of-way, but we don't know what train struck it. And that train has both state and interstate freight in it. Now, there must be an approximation of the amount that is paid for that cow killed by the railroad, and then this approximation spreads it over the different kinds of traffic; and it assumes that the gross tons of intrastate traffic are just as responsible as the gross tons one mile of interstate traffic.

There is one thing I want to say here, before I forget it. I think there is a clause in this formula, but I am not sure of it, but
741 I know that we in compiling figures, if we are able to assign an item to either state or interstate direct, we do so, but if we are not able to assign it directly then we apportion it to state or interstate.

For instance, take accounts 101 and 102 in the compilation. I think it is understood by all accountants that if they had some item in there that could be located direct to state or interstate it was so located although the text here might refer simply to the apportionment.

Mr. Moore: I think it would be better to let him have Mr. Hamilton explain the principle on which this division was made.

Mr. Hill: All right, if the Court wants to hear it.

Mr. Hamilton: In these casualty accounts wherever it was possible by reference to the voucher that made the payment to determine whether a casualty was chargeable to freight or passenger, state or interstate, it has been so charged directly. And that is true of this damage to property account which has been discussed. For instance, if the claim paper showed that a passenger train set out a fire and we paid for the damage done in the farmer's field, it was charged to passenger. And if a freight train set it out it was charged to freight. And if it were found from the engineer's report that a freight train killed stock then it was charged to freight, and so on. But when it came to determine as between state and interstate, the voucher
742 did not tell us whether it was charged to one or another, and it was spread over the traffic.

Mr. Hill: This is an apportionment of line expense between intrastate and interstate and not between passenger and freight.

The Court: It can be allocated between freight and passenger but it cannot be allocated between state and interstate.

Mr. Hill: We have held that all along.

Mr. Nay, going back for a moment: You said,

"The train mileage has little to do with those accounts. The casualties do not occur with regularity; that is, with reference to the train mileage."

Isn't it also true that they do not occur with regularity with reference to gross ton mileage?

A. Yes, sir.

Q. Your objection would not obtain with reference to the gross ton mileage?

A. No, sir.

Q. Why not?

A. Because the gross ton mileage spreads the charge over different classes of traffic in a more equitable way than does the train mileage. If we are now talking about a division between state and interstate, there are no state and interstate trains. I understood you to state that you are not talking about state and interstate?

Mr. Moore: Can you tell us the difference between a state and an interstate train?

A. I have just stated that you cannot, because there are no trains known as "state trains" or as "interstate trains."

743 Mr. Hill: I am arriving at the point, is there any factor where gross ton mileage or gross tons or car mileage—you object to train mileage because casualties do not occur with regularity with reference to train mileage. Now, I ask you if that is not true with respect to ton mileage.

A. With respect to what kind of a division?

Q. What we are talking about, a division between state and interstate.

A. If you will pardon me, I do not see the point to the question, because we have no intrastate train miles and no interstate train miles.

Q. You don't understand me at all. We do not claim you should divide it according to train mileage, but the point of your objection, as I understood you before, was that these items were not such items as occurred with reference to mileage—in that instance train mileage. Now, I ask you if the point of your objection is not equally true as to car mileage or engine mileage, or ton mileage, or any other kind of mileage?

A. I will ask you what part of the formula you refer to.

Q. The one you have before you.

A. What page?

Q. Page 30.

A. Page 30 is the division between intrastate and interstate. It would be utterly impossible to consider train mileage in connection with interstate and intrastate.

744 Q. I know that. I would not advocate train mileage for a moment, but as I understand your testimony as you gave it before, you objected to the miles, in some instances car miles and other instances train miles, to be used as a factor for dividing expenses, because such mileage, whether train mileage or car mileage,

had nothing to do with the particular item that was to be divided; Now isn't that true?

A. Is that a broad question, about all kinds of expenses, or only about casualties?

Q. Confine it to these that are before you.

A. In the record here, my objection was entirely to train mileage.

Q. I understand; and in some other points you made similar objection to car mileage.

Mr. Moore: I know your Honor's rules in regard to the exclusion of testimony but this is hardly testimony. It seems to me that this is going beyond any reasonable limit. Judge Hill seems to be trying Mr. Nay's impressions as they were developed by his testimony in the former case. I cannot see any relevancy, in connection with the formula before us now.

The Court: Mr. Nay has intimated that after the decision of the Supreme Court in the Minnesota Case he found out that his theory and the theory of all the railroad men was wrong, and now he is trying to find another one. Of course, they may go into it.

745 Of course, the understanding of the court is that this case is not only being tried on a theory entirely different from the theory in the former case, but that they are trying to bring it in harmony with or to meet the objections made by the Supreme Court in the Minnesota Case. Of course, then they have to take a different theory. Mr. Nay, and a great many of the other railroad men, may still think the revenue theory is correct. But the Supreme Court having said it was not, they must take another theory. He may still adhere to his view that it is correct. The question is simply this: If he believes that this is the nearest approximation that can be used. What he said before, he may answer very frankly that that was before the decision of the Supreme Court of the United States, and that he is now trying to make a formula which will harmonize with that decision.

Mr. Hill: That is not the point I am trying to bring out at all. Mr. Nay is put on the stand as an expert and we realize he is a man of vast experience and most competent to testify on these questions. Now the formula offers a basis, and he has heretofore in regard to a similar basis made certain objections. I am trying to ascertain from him whether the objection he then made should be applied now to the present formula. It is a method of testing the value of the present formula.

746 The Court: It is utterly immaterial what his former opinions were. If I understand it correctly these formulas were prepared by a number of gentlemen whose names appear on the formula, who have for years been connected with practical railroading and practical railroad accounting. That they met, after the decision of the Supreme Court of the United States in the Minnesota and other railroad rate cases, for the purpose of determining upon what basis the cases which are still pending and which should hereafter be brought, should be. At that meeting different views were advanced. After due consideration and deliberation, and listening

to each other, this formula was finally adopted as expressing the correct views of those men who participated, to determine the difference in cost of interstate and intrastate business. Is that correct, Mr. Nay?

Mr. Nay: Absolutely correct.

The Court: And I assume that some of you gentlemen had to surrender your own opinions and adopt others. In fact, perhaps every one had to surrender some of his own views held at that time, before this formula was finally reached, and it is the result of the opinions of all of you that met there. Like the verdict of a jury: Some jurymen do not agree when they first go out and they must surrender their own views and adopt the majority view.

Those are your views, Mr. Nay?

747 A. Those are my views exactly.

Q. You, as a practical railroad man, familiar after years of service as a railroad accountant with these matters, believe that this formula adopted is the closest to enable the court to determine the difference in cost between state and interstate traffic?

A. Yes, your Honor, I do.

The Court: Of course, you may ask the witness, or attack any of them, and show the incorrectness of them, and show how nearly they came to it.

Mr. Hill: That is exactly what I am trying to do.

The Court: But you need not go back. He stated frankly he had changed his opinion. This Court has frequently changed his opinion.

Mr. Hill: He made a criticism of the formula prepared by the state's accountant in the former case, and I ask him now if that criticism is not true of his own formula. That is the point of the whole question.

The Court: You may answer that question, that by reason of what has been the decision of the Supreme Court of the United States in the rate cases, and after consultation between you and these other gentlemen, what are your views now as to your former objections and criticisms.

A. In the light of what the Court has just said, my views are that this present formula comes more nearly giving the correct results than any that I know of up to this time.

748 Mr. Hill:

Q. Then you think the gross ton mileage is the proper basis to divide these particular expenses which we are discussing (on page 30) notwithstanding they do not occur with regularity or in reference to miles?

A. Yes, sir, and for this reason; that they spread these expenses which are common, and which cannot be located to either state or interstate traffic, on a uniform basis over the gross ton miles of each class of traffic.

Q. Please turn to page 1838 of the printed record. You objected to the division of cost between local and through trains on the ton

mile basis because it did not take into consideration the less than carload business, didn't you?

A. Yes, sir.

Q. Have you changed your mind about that?

A. Judge Hill, without referring to the detail of this formula, in view of the changed condition by reason of the decision in the Minnesota Rate Case, if our new formula is different I have changed my mind, in view of our discussion.

The Court: Wouldn't that apply to everything wherever this formula differs from your formula in the other case, you have changed your views?

A. Yes, sir. And I would like to make one statement, if I may. In the former case, I think it was nearly always true—I know it was true on the Rock Island—the evidence as prepared on the revenue basis we made up largely ourselves. At that time we had not the extended conferences with each other which we have had
749 since then. While we conferred somewhat we had not conferred with each other to the extent we have since then.

Now, as to having changed my views: In some instances, and perhaps many, I was constrained to change my opinion in view of the presentations of my colleagues, presenting the matter in a new light, with new ideas; and I think it was the way with all of us, by the freest interchange of views until we finally reached this new formula presented here.

Q. Here is one thing where I agreed with you then and I still agree with you. I believe you will state you did not change your mind. Here is a question to you on page 1838.

"Q. After having ascertained, in the manner indicated by what we have gone over, the relative cost of local and through trains, of the freight carried on each kind, the state has undertaken to divide that expense on a ton mile basis ratably between state and interstate freights: I want to know what your views are as to the correctness of that method of ascertaining the relative cost of conducting state and interstate business.

A. I think the method is erroneous because it makes no distinction between the different kinds of freight, principally carload and less-than-carload. The expense of hauling a given number of tons of carload freight is less than the expense of hauling the same number of tons of less-than-carload freight the same distance. That is a distinction which is generally recognized in cost accounting and in the rates that are charged for the service."

You have that before you?

A. Yes, sir.

Q. You haven't changed your mind about that statement, have you, Mr. Nay?

A. No, sir, I have not.

750 The Court: You still believe it costs more to haul less-than-carload than carload freight?

A. Yes, sir.

Mr. Hill: I did not think you had changed your mind on that, Mr. Nay.

Now turn to page 1842 of the printed record. This is on the passenger side. Without reading it I will state it: In the state exhibits they made a distinction between local and through freight, but did not, for reasons stated, make a division of local and through passenger trains. You remember that, don't you?

A. Yes, sir.

Q. After stating those facts you said:

"It seems to me, to be consistant, the same division should have been adopted here between through and local as in connection with the freight, because there are through and local passenger trains just as distinctive as through and local freight trains. The reason given for not separating the through and local passenger trains was that practically all of the through trains do the local business. That is also true of freight trains, and I think there is an inconsistency in the method in not separating the passenger expense between through and local, the same as they did in connection with the freight expenses."

Have you changed your opinion on that subject, Mr. Nay?

A. To this extent: There is a difference in the local conditions. If you had a state where there were through trains that did no local business at all, like the Twentieth Century Limited running from Chicago to New York, there should be a distinction made on such trains, but if you had a state where all of the trains handled both local and through business, I don't think it would be necessary to make a division between local and through for passenger as for freight. To this extent I have changed my opinion, yes.

751

Q. You were referring to conditions in Arkansas when you testified before?

A. Yes.

Q. And you are referring to conditions in Arkansas now?

A. Yes.

Q. Is there any material difference in the roads then in your mind than the roads now in your mind?

A. I don't know that there is.

Q. Do you remember that I pointed out to you that on the Cotton Belt they had no through trains at all, and on the Iron Mountain only five, six or seven, and you stated that that made no difference, that the separation should be made?

A. At that time, but I have changed my mind since then.

Q. If you have changed your mind, all right.

A. At that time the local and through was a new proposition. I think you folks were the first ones to bring it up. It did seem to me if there was a division between local and through freight it should be between local and through passengers, too.

But I am free to say there should not be a division between local and through on the passenger business in a state like Arkansas, where all classes of traffic are handled on the same trains.

The ultimate object of all this formula is to finally get the divi-

sion between state and interstate. Now, if the through trains
752 carry both state and interstate passengers, and the local trains pretty much the same, as was stated before, and I think is still the case, then there is not the necessity.

Q. There is just the case where you have progressed and joined the state.

A. Whether progressed or not, we have changed.

Q. I am glad to see you have changed, Mr. Nay.

Mr. Moore: There is one thing I would like to ask Mr. Nay that will probably save some re-examination:

In speaking of the division between local and through trains, isn't it a fact that because of the division between "line" and "terminal" and the elimination of terminal expenses from the performance of these local and through trains, it modifies and changes the conditions materially from that which obtained when you testified in the Iron Mountain Case?

A. I think so, Judge Moore. We have gotten up a formula now which has different basic principles. We have tried to get nearer to the actual cost by this separation between "line" and "terminal."

Q. What I mean is this: You said before that you criticised it because of the less-than-carload business. Now, wasn't it because of the larger terminal expense in connection with the less-than-carload that you based your view on when you criticised the formula in the other case?

A. You mean dividing between local and through?

Q. Yes. Dividing local and through expenses between state and interstate. You stated the ground of your criticism to be
753 less-than-carload freight.

A. Yes, sir.

Q. Wasn't that on account of the fact that there was a lot of terminal charges which are eliminated now which were included at that time?

A. Partly that and partly because there is less tonnage of less-than-carload, or no more than in carload. The terminal expenses, it is true, are greater because the railroad company handles less-than-carload freight, while nearly all the carload freight is handled by the shipper or the consignee. That was part of the reason for saying that the less-than-carload costs more. Because you have only four or five trains, and perhaps the average is not over two or three tons of less-than-carload freight in a car, while the average of carload freight will be twenty tons. There is so much waste space in the cars.

Q. The reason I speak of that, great complaint was made by the railroad companies because it did not take into account the increased expense of handling the less-than-carload freight.

A. That was a large part of it, yes.

Mr. Hill:

Q. You remember in the state's exhibit there that came up under another heading, "Station expenses" in the division on the ton mile basis. That was the only train expense.

A. You will have to state when you ask a question whether you refer to station expenses, train expenses, or total expenses. It is apt to get a witness confused when you speak of one and then
754 switch to another.

Q. You look that up, Mr. Nay, and see if your criticism of which you spoke awhile ago, and we agreed to, was not directed to less-than-carload and the expenses between trains. That would not have anything to do with the expense of the yards at all.

A. But so far as the train expenses are concerned, with the large amount of waste space on the train the less-than-carload would be much more expensive.

Q. Certainly. You stated that then, and again now, and any factor that ignored that would be erroneous, wouldn't it?

A. Yes, sir, and terminal expense is a very important factor.

Q. And that was taken care of differently in your formula here and taken care of differently in the former Arkansas formula, wasn't it?

A. Yes, sir.

Q. Turn to page 1842 of the printed record, under maintenance of way and structures—without taking the time to read it, I think I can state your position there and I want to know your present views about it. Maintenance of way was divided between local and through on the car miles, and you objected to that because the car miles did not take into consideration that 90% of the expense of maintenance of way which was due to weather and natural causes: Is not that a correct summary of your position on that?

A. That is part of it, yes.

Q. Have you changed your mind about that?

755 The Court: He doesn't mean whether you have changed your mind, but whether the decision of the Supreme Court has caused you to change your mind, so far as the suit now pending is concerned?

A. Yes, sir, because now we have the use basis rather than the actual wear and tear, and we have tried to divide our maintenance of way expenses on the use basis so strongly urged in the Minnesota Case.

The Court: The Supreme Court didn't say how to divide it.

A. But the word "use" is repeated so many times——

The Court: Yes, but they do not say how to divide it. Also the question of valuation. They say that is wrong. They condemn the ton mile basis as to maintenance of way, and say that is wrong, too.

Mr. Hill:

Q. What is your present view about using car miles or ton miles or train miles or any of those mileage factors for dividing maintenance of way expenses?

A. Well, the maintenance of way expenditures are divided on different bases, according to the formula, and to approximate the use as nearly as possible. Whether or not we have guessed the minds of the Supreme Court, that little word "use" occurred very

often in their opinion, and most of us took "use" as the keynote we should use in this formula, and we attempted to adopt the units which represented the use.

I am still of the same opinion, that I do not think car miles is the correct basis; that they did not make a correct approxi-
756 mation then and they do not make it now.

Q. I am referring to car miles specifically, but any one of those factors which represent that 90% of expense which occurs by reason of natural causes. My objection was—I mean your objection was to using the car miles, not particularly because it was car miles any more than train miles or ton miles, but that these expenses were caused by natural causes and therefore mileage was not applicable to it.

Mr. Moore: Read all the paragraph and you will see that does not include it.

Mr. Hill: There are several questions, but this is a separate one as to natural causes.

A. That is true, Judge Hill, that that part which goes out because of the weather, the action of the elements, is not measured, or is not due to more or less car miles.

Q. More or less ton miles.

A. No, sir; or more or less train miles.

At that time I thought this ought to be apportioned to the revenue, spread over the dollars. But the Minnesota Case condemned that. After that condemnation the Committee adopted the formula which, in their judgment, represented the use.

Mr. Moore:

Q. What is the difference between using the car mile and the train mile, on the other hand representing the use?

A. You mean net ton miles?

Q. Gross ton miles. One represents the car and the other represents the car and its contents.

757 A. The gross ton mile represents the weight of the car and the contents, while the car mile has no reference to the contents.

Q. That is what I meant.

A. In the car miles an empty car is counted the same as a loaded car.

Q. What difference does that make in getting at this question of use?

A. We don't think the car miles approximate the use.

The Court: You mean the heavier the load is the more the wear and tear is?

A. Yes, sir, and the more use of it is made. You have more use of the property in hauling forty tons than in hauling thirty tons.

Mr. Hill:

Q. In your objection then you did not mention revenue at all. You said,

"The expense is caused by deterioration, by the action of the elements, and not by the car miles."

You could say that was not caused by the ton miles and it would be just as true as to say that, wouldn't it?

A. Yes, sir.

Q. And you could say the engine miles would be just as true as this?

A. Yes, sir.

Q. Or train miles, or any other kind of miles?

A. Yes, sir.

Q. The next sentence is, "The expense is incurred by reason of wear and tear and deterioration that occurred in prior months and not during the month of October, 1907, and not during this period."

That would be true of this particular case if you would substitute the months of November and December, 1913, as the test period?

758

A. Yes, sir.

Q. Your objection would be equally tenable as against the former basis as against this?

A. Yes, sir. Not as to use, but as to wear and tear, yes. My objection there is, and you are right, it places the car and ton miles and train miles, so far as wear and tear is concerned. But in the new formula we tried to get a figure which represents use and not wear and tear.

Q. What factor do you think represents the use of the way?

A. The "line" expense. The way which is used between stations. I am not referring to the terminal. I think in dividing between freight and passenger, the engine ton miles represents the use. In fact, I agree with the formula as stated here, all the way through.

Q. Do you think that is a factor which represents the use of 90% of expenses by reason of deterioration, weather conditions, and things of that kind? Or does engine miles represent the ten per cent that is caused by the running of the engine over the road?

A. The entire property is there and is used. You can scarcely say that you use merely the top of the rails. The whole right-of-way, bridges, embankments, fences, are all there for the purposes of use for transportation.

Q. You pointed out in this place and more fully others, that such a factor as the car mile could represent only the ten per cent and could not represent the expense caused by reason of the natural decay that caused those expenses to the right-of-way.

759

A. That was before the Minnesota Rate decision.

Q. I am not referring to the decision, but to the actual facts. Those things were going on just the same before that rate case decision as since.

The Court: Has the Supreme Court decided they are not going on?

Mr. Hill:

Q. You pointed out in this place and in many others that such a factor as the ton mile or the car mile did not represent the ten per cent.

A. That is on the basis of wear and tear.

Mr. Moore: I want to make an objection to that. That question is based, I think, on an entirely erroneous idea of what we are trying to get at. What we are attempting to do by this formula——

The Court: He has explained fully.

Mr. Moore: We are trying to divide this maintenance of way, this wear and tear, according to the use to which the property is applied. It does not make any difference whether it is caused by the running of the trains over it, or whether it is caused by the elements. We take the 100% and the division is made with reference to the use that is made of the track and not what damages the track. We have 100% of damage and we must divide the damage between
760 state and interstate to the extent to which each makes use of that track. That is the object of it. It makes no difference what causes the damage, but it is the use of that track made by these two classes of traffic. His question is a total departure from that proposition.

The Court: Judge Hill contends that the use of the property is the proper factor.

Mr. Hill: Most certainly not, your Honor. I am not taking such a position at all.

Mr. Hill:

Q. The objection you made to the car mile is that it does not represent the other 90%?

A. That is right, on the basis of wear and tear.

Q. My question is, how does the engine ton mile represent that 90% any more than the car mile?

A. On the basis of wear and tear, it does not. But the engine ton mile, on the basis *od* use, does represent the use of the property.

Q. Does it represent the use of it any more than the car mile?

A. I think so, yes.

Q. Why?

A. Because of the difference in speed. We found that the engine ton mile, as I have stated before—the heavier engine being used for the same weight of train, in order to accomplish greater speed, and speed being an element of use, that is the best way we have found to approximate the use represented by the speed of the train.

761 Q. You must take into consideration both speed and weight.

A. The engine ton mile does that.

Q. How does it take into consideration the weight?

A. The word "ton" represents weight, and the word "mile" represents distance.

Q. That is the engine only, and does not represent anything behind it?

A. I think it does, because the heavier engine pulls the heavier train.

Q. Does it always do that?

A. There are exceptional cases where it does not, but substantially always, yes.

Q. Do you think all the engines are loaded up to their potentiality?

A. If "potentiality" means their maximum ability to pull, no, because few railroads have an amount of business to load them up to their maximum capacity; but the larger engines are put where the heaviest trains are hauled and where the greatest speed is required. Sometimes the larger engine on the through fast train is heavier than the same engine attached to a train of the same weight where the speed is not required; but, as a rule—there are exceptions, of course, to all rules—and sometimes you will see a large engine with a small train—but, as a rule, the heavier engine pulls the heavier train at the higher rate of speed. That is the reason
762 why the railroads buy heavier engines to pull heavier trains at a higher rate of speed.

Q. You find plenty of big engines hauling little trains, don't you, Mr. Nay?

A. No, sir, not as big as for the heavier trains and traveling at the same rate of speed.

Q. You take an engine to represent the average conditions that the engine should represent; that is, pulling a full train of cars about up to its potentiality?

A. Yes, sir, and that potentiality will be as nearly an approach in one class of trains as in another, so the percentage obtained will be correct.

Q. You use an engine as a type to represent the train that is behind it, and using that as a factor to represent the use of the entire track: That is about it, isn't it?

A. Not exactly that. We find in actual practice that engines are put into the work they will do. The heavier engine, as I have said, you will find attached to the heavier train or to the train with the greater speed, and you will find small engines attached to smaller trains, or to trains of lesser speed.

Q. And you get a lot of good service out of engines about half way worn out, don't you?

Mr. Moore:

Q. The heavier engines cost more, don't they, Mr. Nay?

A. Yes, sir.

Mr. Hill:

Q. Does the cost of the engine enter your use basis for maintenance of way?

763 A. No, sir, not primarily.

Q. You find a lot of old engines doing good service, don't you, Mr. Nay?

A. Yes, sir; but the fact that an engine is old does not necessarily discredit it. If it is kept up in good repair an old engine may be as good as a new one.

The Court: Whether I understood the other testimony correctly or

not, it tended to show that every engine is known as to what its capacity is, and on all well regulated railroads the big engines will be placed on the part of the road where the big work is to be done, and the small engines on the part of the road where the lighter work is to be done. For instance, an engine of 1200 ton capacity would not be put on a branch where they carry only about 200 or 600 tons. They try to put the heavy engines on the piece of road where the heavy traffic is done, and the small engine is put on the branch roads while the big engines are put on the main line.

Q. Isn't that so, Mr. Nay?

A. Yes, sir.

The Court: I believe some witnesses testified that the highest ideal of railroad management is to try to have every engine draw as near its full capacity as possible.

Mr. Hill: Another element enters into that question, and that is the discretion of the superintendent as to what engine will be placed on a particular division.

A. I wouldn't understand so.

764 Q. I understood you to say so.

A. The superintendent has charge of only one division.

Q. Well, the general manager, then. The discretion of this man higher up is also another element that goes into determining the engine mileage as a factor to represent the use of the way, isn't it?

A. That is true; but, Judge Hill, if these men of long experience in railroading were to put the large engines that can pull from 1200 to 2000 tons on the branch lines, where trains would have say 150 to 200 tons, they would soon lose their jobs.

In order to discredit this formula you must discredit the intelligence of the railroad men.

Q. I have as much respect for them as you have, Mr. Nay, but they are not infallible. There are men who came on the stand and testified about the great cost of state over interstate traffic. The Court said they might make a mistake as other people might. Now, couldn't they make a mistake about engines as about cost?

A. Yes, sir, but as a rule they do not make such a mistake as that.

The Court: How long would it take to find it out, if they should?

A. Mighty quick; as soon as their reports would come in.

Mr. Hill:

Q. You use that engine as a representative of the load behind it?

A. Yes, sir.

Q. Why didn't you make up statistics and show what is behind it?

765 A. Because we believed the engine ton miles would sufficiently represent the use of the property, rather than to put the whole thing in, because of the element of speed.

Q. You say the engine is representative of what is behind it; you have the data to show what is behind it: Instead of putting in as the representative and exponent of type, why didn't you put in the actual facts and show what is behind it, and use that as a factor?

A. As I say, it was the concensus of opinion of the Committee, in which I concurred, that that more nearly represents the use of the property.

Q. You say the engine does represent the use of the train and is more nearly representative of the use of the property itself?

A. I think so, when you take into consideration the element of speed.

Q. You took into consideration the element of speed of the train before, didn't you?

A. That is just what I wanted to explain. On the Rock Island we made a test and figured out what we called speed ton mile.

Q. And you didn't use it in this formula?

A. I will tell you why: Because speed ton miles approximated almost exactly what the engine ton miles showed. It costs less to compute engine ton miles than speed ton miles and when both approximated the same results, on the Rock Island, and I am speaking of that road now, but I think the same would be true of
766 other roads—the result being so nearly the same we discarded the computations because of the expense of obtaining them.

Q. I thought you said a while ago that you made this formula before you knew what the results would be.

A. Did you see the preliminary formula?

Q. Yes.

A. Do you remember it was stated there that the division of maintenance of way expense was left open? It stated in the front of it that the division of maintenance of way expenses were left open——

Q. Four ways were there suggested——

A. May I not answer your question, please?

Mr. Moore: Let him answer.

The Court: Let him finish his answer.

A. While there were several ways left as optional ways for dividing maintenance of way expenses between freight and passenger, there was nothing concealed there. It was all open. To use the street phrase, "The cards were all on the table." Speed ton miles was one of the four or five ways mentioned in the formula. After finding how much it cost to compute speed ton miles as compared with engine ton miles, and having later produced practically the same result, we discarded the speed ton miles. At a meeting in Milwaukee the different methods were discussed before a large body of railroad men, where the speed ton miles was considered as being rather better than anything else that was mentioned. It was not finally decided upon, but it was the "favorite," so to speak.
767 Then when we found the engine ton miles approximated speed ton miles, the former were adopted.

Q. Did speed ton miles take in the entire train, the engine, tons, and speed?

A. Yes, sir.

Q. You had that compiled for a test?

A. For a period, not for a test.

Q. You had it compiled the same as for the others. Didn't the Frisco have it compiled?

A. The Frisco could answer better than I could for that.

Q. There was a speed ton mile and an engine ton mile—and what was the other?

A. Engine miles and train miles and cost accounting I think was the other.

Mr. Moore: Gross ton miles.

A. There were several. I would not be sure about the fourth or fifth. We got in almost everything any man on the Committee suggested as a basis. We could not agree, and left that open.

Mr. Hill:

Q. You made a test on the Rock Island and found speed ton miles and engine miles to be practically the same, and on account of economy you adopted the engine ton miles as representative of the entire train and everything behind it?

A. Having by that test proved it to be true.

Q. Do you think that the proper factor to represent the use of the way?

A. Yes, sir, I do.

768 Q. That is your best judgment about it?

A. Yes, sir.

Q. That is between passenger and freight, and local and through, is it?

A. No, sir, only between passenger and freight.

Q. Why is it not good between local and through?

A. I think I said awhile ago why.

Q. At page 28-A I see you used the gross ton miles as the basis of division between through and local, but when you come to divide state and interstate traffic on those trains you used the net ton miles: Why do you change that basis and use that, if the engine ton or the gross ton would represent the proper division of way expenses?

A. That is a departure from the printed formula. The printed formula provides for a division of maintenance of way and structures expenses on the basis of gross ton miles and explains how they should be divided.

I would like to state here that the St. Louis & San Francisco Railroad has departed from the printed formula in two or three instances as a matter of principle; and these little interlineations, many of which are simply explanations and most of which bring practically the same result as the printed formula; and when I testify for the departure the Frisco has made I don't mean to discredit the original printed formula at all.

In this instance before us the printed formula provides for a division on the basis of gross ton miles and the Frisco has divided

769 on the basis of net ton miles one mile.

At the risk of being interrupted, I will say that the Frisco basis is more favorable to the state than the gross ton mile basis, be-

cause that, while getting in the excess weight, the waste weight, in less-than-carload freight, would assign a larger proportion to the intrastate than the state in the ton mile basis.

So in this case, as in the others, the printed formula was the best thought, the result of the combined thought, of all the Committee; and yet, the Frisco has used a basis here which is different from the printed formula, but which is more favorable to the state of Arkansas.

Q. Has it used it because it is more favorable to the state or because it is more accurate?

A. I don't think it is more accurate.

Q. Doesn't it exclude the empty car movement by putting it on the net ton miles?

A. Yes, sir; and, further, it makes no allowance for the less-than-carload freight, which you and I agree costs more than carload freight. It puts a ton of carload freight on the same basis as a ton of less-than-carload.

Q. That is wrong, isn't it?

A. I think so.

Q. There is one point we agree about, Mr. Nay.

Mr. Moore: Would you like an explanation here of why that departure was made in the Frisco formula?

Mr. Hill: No, sir.

770 Q. That empty car would be excluded by putting that on ton miles?

A. On the net ton miles, yes, sir.

Q. Unless you know the amount of the empty car movement you wouldn't know it was favorable to the state or not, would you, Mr. Nay?

A. Yes, sir, because the empty car movement would be divided on the basis of the gross tons, I think; either gross or net tons in that train, in each individual train. Unless the empty cars are divided on the basis of the loaded cars the empty cars would fall right in in the same proportion as the contents .

Q. But when you go down there and take it on the basis of net tons, doesn't that eliminate the expense of the empty cars in any train?

A. Well, suppose you had a train with thirty loaded cars and ten empties and half of the tonnage of that train was intrastate and half of the tonnage was interstate: The empty cars would be divided one-half interstate and one-half intrastate. So, as I see it now, the percentage would not be affected when you use the net ton mile basis, whether you put in or exclude the empty cars.

Q. It looks just the other way to me. Suppose a train of thirty cars had ten empties, and ten of the loaded cars contain state freight and ten contain interstate freight: Then you would divide that on the net ton miles: That would exclude from consideration entirely those ten empty cars, wouldn't it?

771 A. Yes, sir.

Q. And would divide the expense evenly, wouldn't it?

A. Yes, sir.

Q. But suppose instead of being ten empty cars there, those ten empties had been engaged, nine of them in interstate business and were returning for an interstate load. Then you would be having the state business charged 50% when it should bear only 10%?

A. In the empty car movement of a train we have never attempted to fix the use of that car in connection with the load it last hauled or in connection with the load it is going to haul. It might be unloaded at a station where it was picked up a load of interstate freight, and then it might be ordered from there fifteen miles away to pick up a load of intrastate freight; and the question would then arise whether the empty move of that car would be assigned to intrastate or interstate. That was talked of in the Committee and it was found impossible to do it.

Q. That is the question I asked you awhile ago, whether you could tell that helped the state or not unless you knew this movement on the Frisco; could you?

A. I think I could.

Q. We located a lot of those cars. These were various other equipment and practically all interstate. If you had a train of ten oil cars in Arkansas you would know all of that was interstate, wouldn't you?

A. You mean by that there are no oil shipments between points in Arkansas?

772 Q. Not carload.

A. Only crude oil is shipped from the oil fields. Refined oil is shipped from other points.

Q. I am speaking of tank oil cars.

A. I am not familiar enough with it to state. I would not know it is impossible for tank oil cars to be shipped from one point in Arkansas to another.

Q. We can agree that it would be negligible—that favorite word we use here. If there were ten oil cars on that train you have used as an illustration, ten interstate cars and ten intrastate cars, you would have the expense of those ten empty interstate cars borne equally by the intrastate and the interstate business?

A. Yes, sir.

Q. But that would not be fair, would it?

A. Not in that particular case, but there would be other cases where it would be.

The Court: Of course, you can't go by exceptions.

Q. Mr. Nay, in your experience as a railroad man is there any difference between the interstate and intrastate business as to the number of loaded cars and the empty cars back?

A. I don't think there is. My judgment is they would be in proportion.

Q. There would be as many cars in interstate as in intrastate?

A. In proportion to the business.

773 Q. That is what I mean, in proportion to the loaded cars in each class of business.

A. Yes, sir.

Mr. Hill:

Q. You mean here where you said the Frisco has done better by the state, it would assume there was the same relative empty car movement in intrastate as in interstate business?

A. Yes, sir.

Q. If that were an erroneous assumption then this would be a mistake, in placing this final division on the net ton mile basis?

A. Sure, if that should prove to be erroneous.

Q. While we are discussing that ton mile basis you had a great deal to say about the ton mile being an inaccurate factor in the other case. Have you changed your view on that subject, about the ton mile?

A. As applicable to the total cost, yes, but as applicable to line expenses strictly—well, I may say applicable to the total cost, no.

As I said then, we have only three common bases, the ton, the ton mile, and the revenue. You remember I contrasted the three. There were objections to the ton, and to the ton mile, and less objection to the revenue basis. The revenue basis was the best of the three. The revenue basis has been discarded and we have gotten up a new formula. Now, as applicable to all expenses, I say yes, but we have expenses when segregated in this formula to
774 which the ton mile basis may properly apply. To that extent I have changed my mind.

Q. You think the ton mile is a proper factor to divide property, as representing the use of the property?

A. What kind of property?

Q. Railroad property.

A. Line or terminal; station, train or equipment?

Q. I would say any of it.

A. You mean net ton mile or gross ton mile?

Q. Either way. We are trying to get a factor representing the use. I made the argument here before Judge Trieber that I thought the ton mile was a good factor to divide property as representative of the use of the property.

The Court: The Supreme Court of the United States said everything was wrong but it didn't say what was right.

Mr. Hill: What they said about the ton mile was in reference to using it for dividing expenses.

The Court: They said that where the state rates are made so they discriminate against the interstate rates, then they are void and may be enjoined, and they must have copied the language from Judge Sanborn's opinion in the Minnesota Rate Case, because they follow that very language. But we don't know any more about the law on rate cases now than before the decision.

Mr. Hill: Is it a proper basis to divide property? What I want to get at is this, the difference between the gross and the
775 net ton mile basis. By "proper basis" I mean the basis of use, as you are using that term.

Mr. Moore: Specify what property.

Mr. Hill: I asked him any property.

Mr. Moore: That is too general.

Mr. Hill: I will ask him, is it proper to divide any railroad property with it?

A. It might be proper to divide some property with, but I don't think of anything now. What part of the formula do you refer to now, Judge Hill?

Q. I am not referring to any specific part of it. You will find the division of property in 38-A as modified.

A. The same remarks would apply there as applied to the other one, that while I agree with the modified formula here as a fair basis, and it assigns less to the state than I think it should—I do not mean by that to discredit the printed formula at all.

Q. I am not asking you about the formula at all. I want to get at this factor of use. My question is, is either the gross ton mile or the net ton mile a proper factor for dividing between freight and passenger or state and interstate?

A. That is a pretty broad question.

Q. I am assuming that you are a pretty broad man, covering the whole field of railroad use.

A. You are assuming too much.

My recollection is we did not find any property that was
776 divisible on basis of net ton miles that would necessarily be a freight proportion, in connection with these cases.

As I say, there might be a kind of property—there are so many things involved in the railroad business, that that might be a true basis; but I can't think of anything now.

Q. Can you think of anything where the passenger mile would be proper?

A. No, sir, not any more than on freight.

Q. It would be the same proposition, the ton mile on one side and the passenger mile on the other?

A. Not necessarily, because there is more uniformity in the passenger miles than in the ton miles.

Q. Yes, I expect that is true, more uniformity in expenses—I don't know about that either; more uniformity in revenue but is there in expenses?

A. I don't recall making any comparisons and if I did I don't recall just now what they are.

Q. You have stated, I think, that you believe the expense basis is the proper factor with which to divide the property.

A. I stated just a little while ago that that is one of the departures that the Frisco Railroad has made from the formula. If you will read my testimony you will find it is a good deal like ton and ton mile and revenue before. That is a comparison of maintenance of way and structures and transportation expenses. I stated
777 that transportation was better than maintenance of way expenses for a short period. If this could be ascertained for a long period, say eight or ten years, so all the maintenance expenses could be brought in, my answer would be different. But maintenance of way expenses for a short period may be very largely for

certain classes of work which might not be in progress during another period, but transportation expenses go on from month to month. I don't mean by that to say that that was the only basis. I think that is an eminently fair basis, as I said just a little while ago, and having made the comparison on the Rock Island that assigns less to the intrastate traffic than the printed formula, which divides between freight and passenger on the train mile basis.

Q. You adopted the train mile, you and your Committee, as the best thought you then had on the subject?

A. At that time, yes. That was one of the late features of the formula. Value was considered near the end of the conferences. The first thing we attempted to divide was operating expenses.

Q. If the ton mile represents the use why does transportation expense represent the use? I don't see the relation between those two factors.

A. As I said before, in my former testimony, I had those two things before me—maintenance of way and structures and transportation expenses. Now, the Frisco in using the transportation expenses used the proper basis for its way and structures, but I
778 don't think they used the best basis. They used a basis manifestly fair to the state, but personally, if you want it, I think candidly that the engine ton mile basis was better than either.

Q. You mean for what?

A. That is for line value between freight and passenger.

Q. That is to divide the property?

A. Yes, sir.

Q. Between freight and passenger?

A. Yes.

Q. But would you use engine ton miles to divide between state and interstate?

A. No, sir; I would not have any state or interstate engine ton miles.

Q. Then how would you make your next division?

A. There we are again—we talk about freight and passenger a while and then about state and interstate. To which do you refer?

Q. I am talking about the proper way to divide property. You begin with freight and passenger.

A. No, sir, we begin with line and terminal in this formula.

Q. Not in dividing the property.

A. Yes, sir.

Q. Maybe I am wrong. Leave out the formula and begin with the principle.

A. At the top of page 38 you will find "Apportionment of value of roadway and structures between freight and passenger and
779 line and terminal."

Q. Take line and terminal and both freight and passenger. I think you would take it as between freight and passenger before you subdivide it between line and terminal.

A. No, sir.

Q. Take either way you prefer. What do you think in your

judgment would be the best factor to represent the use of the property for dividing between line and terminal?

A. I think the formula as printed here is all right; it is fair and it is proper, with the one exception, as I stated, my personal opinion is, engine ton miles rather than revenue ton miles.

Q. For what?

A. For the division between freight and passenger, all line expenses; not for terminal expenses—pardon me, I mean line value or line property.

Q. You would get your line value and then divide it between passenger and freight on the engine ton miles. Is that correct?

A. Yes, sir.

Q. Then you would get your terminal property and divide it between freight and passenger—on what basis?

A. We would use that on the basis of the maintenance expenses of those facilities.

Q. Would it be maintenance of way expenses, or those specific facilities?

780 A. I don't know how the Frisco did it in this case, but we have apportioned the maintenance in Oklahoma of the different facilities between line and terminal on the basis of the use of each facility. We have considered each facility separately and have divided maintenance expenses on that basis. Having divided maintenance expenses on that basis we have considered it fair to use maintenance expenses in dividing value as representing use.

Q. What do you mean by maintenance expenses—the equipment?

A. Terminal would be all maintenance of way, buildings, yards, tracks.

Mr. Moore: Terminal includes maintenance of way and equipment.

Mr. Hill:

Q. Is that correct, what Mr. Moore stated there?

A. If you included part of the equipment in terminal expenses—is that switch engines?

Mr. Hamilton: There would be some switch engines.

A. (Continuing:) There would be some switch engines in terminal—I did not have those in mind—that would perform terminal work.

Mr. Hill:

Q. There are some equipment expenses in terminal?

A. I did not think of the switch engines at first.

Q. I did not understand it that way.

Mr. Hamilton, what is in it besides switch engines?

781 Mr. Hamilton: I am confused. I don't understand the question and I don't know that Mr. Nay does.

Mr. Hill: We are trying to find the proper way to apportion the value of the property between line and terminal, freight and passenger, and the question is whether any equipment is included in terminal property.

Mr. Hamilton: No, sir. There is a terminal proportion of equipment, but that is apportioned on a different basis. If you speak of right-of-way and structures, no. I presume that is what you mean.

Mr. Hill: No, that is not what I mean. I want to know if there is any equipment property included in the terminal property. You divide "terminal" on a different basis than "line." I want to know if there is any equipment in your terminal property. Mr. Moore stated there was and I didn't understand it so.

Mr. Moore: That was a question to call attention to it. I understood there was certain terminal work that would be included there.

Mr. Hamilton: Equipment goes practically to state and interstate on the formula.

Mr. Hill: That is the way I understood it.

Mr. Nay: That was my understanding, but not being thoroughly familiar with the Frisco formula, I didn't know. I think if there is any difference it would be negligible.

Mr. Hill: My question is, to get a proper factor to divide
782 this value: You use one factor for line and I want to know what factor you use to divide your terminal property as between freight and passenger and then between state and interstate.

Mr. Moore: What do you mean by dividing terminal?

Mr. Hill: Terminal property.

A. It is the property assigned to terminal service like station buildings, yard tracks, and property of that character.

Mr. Moore: Oh, I see.

A. Taking the terminal first, the value as stated here, "the value of individual station facilities and tracks is to be apportioned between freight and passenger and between line and terminal in the ratio of the percentages determined for the apportionment of the maintenance of such facilities."

Then in the second section it is, "Apportion between state and interstate and mail and express in the ratio of the assigned maintenance of way and structures expense after the company material adjustment has been made, treating freight and passenger separately."

In other words, it follows the assigned expense of maintenance of way and structures.

Mr. Hill:

Q. That is the terminal part of it?

A. Yes, sir.

Q. The line part of it follows the assigned expense of transportation?

A. Yes—well, that is between freight and passenger.

783 Q. Isn't that between state and interstate?

A. That is the Frisco method, but not the method of the printed formula here. According to the printed formula the method is to assign the line value——

Q. I want to look up one phase of that. While we are on "terminal" I wish you would turn to page 2 of Exhibit 4. I will have to

come back to value a little later because I think we were not clear on that.

On page 2 of Exhibit 4, it states the terminal cost of each ton handled is 36.486 cents, or 72.972 cents for two terminals, the receiving and delivering terminal of each ton moved. The multiplication of the cost of the two terminals by the total number of revenue and non-revenue tons handled will give the total terminal cost of the entire line, will it not?

A. In Arkansas?

Q. No, for the entire line.

A. This, I understand, is the cost in Arkansas, isn't it?

Q. Yes, but it says it is reflective of the cost throughout the system, so you can take it that way.

A. I wouldn't think that modification would be correct.

Q. Why?

A. Take it in South Dakota on the Rock Island where traffic is very thin and the cost per ton there would be a great deal more than say in Illinois, where traffic is dense. You can't take the average cost in South Dakota and multiply it by the tons handled
784 on the system and get the total cost of the system. I don't think it would follow that you could take the cost in Arkansas and multiply by the total tons of the system and get the total cost for the system. You would get an erroneous figure.

Q. Take the middle of that page:

"Proceeding on the assumption, as indicated by the principle laid down in the formula filed as Exhibit No. 1, that it costs the same per ton for a given terminal or station handling of a ton of intrastate freight that it does for such handling of a ton of interstate freight and further, that it costs the same for the haulage of a ton mile of intrastate freight that it does for a ton mile of interstate freight, and the further assumption as indicated by the formula, that an allowance of revenue should be made to the States furnishing terminal service to compensate for the cost of such service, and having, in a division of operating expenses, as described in other exhibits filed in the case, determined the cost per ton for terminal service in Arkansas, and the cost per ton mile for line, or haulage, service, in Arkansas, of all freight traffic, and the relation of the terminal cost per ton to the line or haulage cost per ton mile, the terminal cost per ton was reduced to the basis of a cost per ton mile. That is to say, an apportionment of operating expenses based on the test conducted in the months of November and December, 1913, developed that it cost 36.486 cents per ton for terminal service, and .465 cents per ton mile for haulage service in Arkansas during that period. So that the cost of handling one ton in terminal service was equivalent to the cost of hauling a ton 78 miles. Thus, in order to make the revenue allowance described above, to compensate for terminal costs, there was added to the actual road mileage, of each separate interstate haul in Arkansas, 78 miles, and to the mileage proportion of such haul in other states, 78 miles, and these equated mileages were used as factors to divide the adjusted earnings tabulated between each pair of stations, as described above.

This process assumes that the average terminal cost, per ton handled, in Arkansas, is closely reflective of the average cost
785 per ton for similar service in the other states in which the St. Louis and San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per ton mile in the other states in which the St. Louis and San Francisco Railroad operates."

Now, assuming that to be correct—that is what I am calling attention to that page for—if you assume that to be correct, then wouldn't it be that the multipication of the cost of these two terminals by the total number of tons of revenue and non-revenue freight handled would give the total terminal cost for the entire line?

Mr. Moore: What do you mean by "terminal cost for the entire line?"

A. I see the point you make and I am trying to think if you are doubling up the terminal in that computation. If you have not doubled any terminals——

Mr. Hill:

Q. I see your point. Every shipment of freight has two terminals. Now, we are not speaking of Arkansas, but a shipment of freight on the line. It necessarily has two terminals, hasn't it?

A. Yes, sir.

Q. And this exhibit says that each terminal——

A. Pardon me for the interruption—each shipment has two terminals except intrastate and trans-state shipments.

Q. Well, they have two terminals also; not in Arkansas, it is true, but each shipment has two terminals. I am not speaking of Arkansas now but the entire transportation problem. A
786 trans-state shipment has two terminals and an intrastate shipment has two terminals: Isn't that true, Mr. Nay?

A. Yes, so far as the system is concerned.

Q. In this exhibit the figure is stated as 36.486 cents per ton as the cost: Now, each ton of freight necessarily incurs that cost twice, doesn't it?

A. If this is the terminal cost at one end, yes.

Q. My question is, that the multiplication of the cost of these two terminals, that is, multiplying the 72.972 cents, which is the doubling up of the terminal cost, by the total number of revenue and non-revenue tons handled, will give the total terminal cost for the entire line.

Mr. Moore: It may be important in order for the witness to answer the question that he should understand exactly what you mean by "terminal."

Mr. Hill: I will stand cross-examination if you choose.

Mr. Moore: Do you mean the sense in which it is used in this formula?

Mr. Hill: Certainly. I am speaking of the line of the St. Louis and San Francisco Railroad.

Mr. Moore: Quite a number of elements enter into terminal cost.

Mr. Hill: All those are included in the 36 cents, if your formula is right.

Mr. Moore: Is that the cost of a revenue producting ton?

Mr. Hill: I say both. In another exhibit you assume that
787 the non-revenue has the same cost as the revenue ton. I questioned Mr. Nay about that and he said that was a fact.

Mr. Moore: All I want is that Mr. Nay should understand the drift of your question.

Mr. Hill: I think Mr. Nay understands it.

A. Yes; the only thing I want to get through my mind now is whether it is a doubling up of the terminals or a doubling up of the tons. I will want a little time on that. I have so often gotten tripped on tons. A ton is duplicated so frequently in our statistics. It is moved over one division and is called a "ton" there, and then it is moved over another division and is called a "ton" there. It is moved in one state and is called a "ton", and then moves in another state and is called a "ton."

Q. I am referring to tons and terminal cost, and a ton as referred to in this formula and in this exhibit (indicating Exhibits 1 and 4). This exhibit purports to give the terminal cost there which is 36.486 cents for each ton.

A. May I see the exhibit where that is figured out?

Mr. Moore: Here is the point I want to get at: This average is produced by using the revenue tons. If you attempt to apply that to non-revenue tons you will get an erroneous answer every time. You are taking now a cost that is an average, which is based on revenue tons; you are applying it now to something entirely different. That is what I want Mr. Nay to understand.

Mr. Hill: I am including it now and then I will take it
788 separately.

Mr. Moore: You cannot get an average cost by including non-revenue and revenue tons.

Mr. Hill: Look at Exhibit 2.

The Witness: I would like to ask whether that 36.486 cents was obtained by dividing revenue tons into cost of service, or by dividing the total?

Mr. Hamilton: That 36.486 cents average on Exhibit 2 was obtained by dividing tons of revenue freight in the state of Arkansas into the total revenue cost in the state of Arkansas; and in that accumulated terminal cost is included also——

Mr. Hill: That is also in Exhibit 10?

Mr. Hamilton: Yes.

Mr. Hill:

Q. Turn to page 2 of Exhibit 10, the second paragraph after the computation:

"This method of determining these non-revenue costs assumes that it costs the same in terminal service to handle a non-revenue ton or passenger, as it does to handle a revenue ton or passenger, and that it costs the same in line service to haul a non-revenue ton or pas-

senger one mile, that it costs to haul a revenue ton or passenger one mile."

Now, it is on account of that statement I include in my question both the total number of revenue and non-revenue tons handled.

A. I would say this, that if this 36.486 cents is arrived at as Mr. Hamilton says—and I haven't the slightest doubt of it——

789 Mr. Hamilton: Exhibits 11 and 12 show it does.

A. (Continuing:) This rate having been determined by being based on revenue tons one mile is 36.486 cents, then in multiplying twice that amount by the number of tons to get the total terminal cost, you should use the total revenue tons and not the revenue and non-revenue tons. In other words, you cannot take an average basis of net tons and then multiply by something not in that basis, and get a true result.

Mr. Hill:

Q. That would be true if it is a fact.

A. I am taking it for granted it is a fact. Mr. Hamilton says it is and I am sure that is right.

Q. So am I, but take page 2 of Exhibit 10: It says, as I understand it, that the method of determining these non-revenue costs assumes that it costs the same in terminal service to handle a non-revenue ton or passenger as it does to handle a revenue ton or passenger, and that it costs the same in line service to haul a non-revenue ton or passenger one mile that it costs to haul a revenue ton or passenger one mile.

A. Sure.

Q. I am assuming from that, but I may be mistaken, that they have taken into consideration the non-revenue freight as well as the revenue freight, on the basis that it costs the same.

A. Mr. Hamilton says not. He says they took the total terminal service and divided it by the revenue tons and it gave 36.486 cents.

So if you multiply that 36.486 cents by 125% of the revenue
790 tons you get a result that is abnormal.

Q. That, of course, would be true. I have assumed it that way and if Mr. Hamilton says no, then I am mistaken.

A. He compiled those statistics.

The Court: Mr. Nay, if you can't tell by the evidence before you why don't you simply state that you cannot answer the question because you don't know on what basis the statistics were made? We have been permitting this, but it is not proper for Mr. Hamilton to tell you how he arrived at it. You should state that you do not know and the information before you does not state. Simply answer that you cannot reply with the information before you.

A. That is really the fact. I was merely trying to be accommodating.

Mr. Hill: I will change the question to conform to these facts.

Q. On page 2 of Exhibit No. 4 it is stated that the terminal cost of each ton handled is 36.486 cents. Now, I will add to that the word "revenue freight" for the two terminals, the receiving terminal and

the delivering terminal, for each ton moved. Then the multiplication of the cost of the two terminals by the total number of revenue tons handled will give the total terminal cost for the entire line, for the revenue freight.

A. Providing the cost per ton for the entire line is exactly the same as for Arkansas, yes.

791 Q. I am assuming his statement is correct, that "it is closely reflective of the entire line:" That is Mr. Hamilton's statement on that?

A. Yes, sir.

Q. On page 2 it is stated that the haulage cost is 4.65 cents per ton mile. A multiplication of this haulage cost of 4.65 cents by the total tons moved one mile of revenue tons of freight will give the total haulage cost of revenue freight for the entire line, will it not?

A. Providing the average haulage cost for the entire line is exactly the same as in the state of Arkansas, yes. But I don't understand this exhibit assumes that to be true. I understand it assumes the terminal cost outside is exactly the same, but I don't understand the haulage cost is assumed to be the same.

Q. Yes, Mr. Nay, right at the bottom of page 2 of Exhibit 4, it says:

"This process assumes that the average terminal cost, per ton handled, in Arkansas, is closely reflective of the average cost per ton for similar service in the other states in which the St. Louis and San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per ton mile in the other states in which the St. Louis and San Francisco Railroad operates."

A. I say, if the average cost is the same in other states, yes.

Q. This does not say the same, but I assume it means that, as it uses the term "closely reflective."

A. Yes, closely reflected in the average and multiplying by the average ought to produce something closely reflective to the

792 total cost, but something that closely approximates the cost is not the actual cost.

Q. I think that would have been a better way to put it, but I am putting it to you as these exhibits put it to us.

On page 4 of this exhibit is the same proposition about the passenger side of the problem. They state the terminal cost for each passenger is 8.677 cents, or for two terminals embarking and disembarking is 17.64. This cost for two terminals is 17.64 cents, multiplied by the total number of revenue passengers handled will produce the total passenger terminal expense for the revenue passengers of the entire line. I want to exclude the non-revenue.

A. To make a long story short, the same principles would apply as to the freight, providing the conditions are the same.

Q. Providing the conditions such as I have read, if we had the expense of the haulage of mail and express for the entire line, you would have the total operating expense for the entire line for the revenue producing part?

A. Yes, sir, and there is still another provision: the tons have been computed for the whole line as for the state, as well as the passengers,

tons, and tons one mile, have been computed on the same basis. I know in making these state cases, it just comes to my mind—I don't know what you are trying to get at in all this, but something important, no doubt—but when we make a study of this kind we get more accurate figures for a particular state than we might have when they are all combined. There are so many ways of duplicat-
793 ing tons and passengers that before accepting any computation you have made here I would have to be very sure that my basis would be right.

Q. I am assuming that Mr. Hamilton's computations are all right on this question of cost.

A. I have gotten fooled so many times on computations that I have made myself that I want to hang out a red light or two.

At this point adjournment was had until tomorrow, Tuesday, September 29, 1914, at 9:30 o'clock in the forenoon.

794 LITTLE ROCK, ARKANSAS, Sept. 29, 1914.

Met pursuant to adjournment as above on Tuesday, September 29, 1914, at 9:30 o'clock in the forenoon.

Present: Same parties as heretofore.

The following proceedings were had:

Cross-examination of Mr. Frank Nay resumed by Mr. Hill:

Q. Mr. Nay, we were discussing yesterday afternoon the apportionment of value between state and interstate, and I will call your attention to pages 38 and 38-A of the formula: The formula, without the Frisco modification, provides for values of individual stations, for instance, to be located, and then that station divided individually by the expense attendant upon it—to state the matter briefly.

A. It is maintenance, yes.

Q. Now, the modification of that throws all the stations in the state, using the station as an illustration of the idea—into a whole and divides that between state and interstate finally upon the expense of transportation: That is correct, is it?

A. That is my understanding, yes.

Q. That will produce different results than if the original formula was followed?

A. Yes, I think the results will be slightly different dependent upon how different the individual station results would be from the total, thrown together.

Q. Without testing them out you couldn't tell what the difference would be, could you?

795 A. No, sir.

Q. It might be very large and it might be negligible?

A. Yes, except I do not think it would be very large. The best way would be to test it out.

Q. It is capable of being quite large—the difference, I mean?

A. Well, there might be a condition where it would be quite large, but I think it would be exceptional where it would be very large.

Q. It would depend upon whether the traffic was homogeneous throughout the state, wouldn't it?

A. I think that could be tested by comparing the result of maintenance expenses on the Frisco with the result of transportation expenses. The difference could be closely approximated in that way, but could not be exactly determined in that way.

Q. That would not have much bearing upon it because I understand the maintenance expense might fluctuate very greatly, particularly in a short period.

A. Yes, sir.

Q. That is the great objection to using the maintenance expenses, because of the great fluctuation there is in it?

A. Yes, for the entire property.

Q. I don't recall which you stated yesterday afternoon you preferred, the original formula or the Frisco modification.

A. I said with regard to the line value my personal preference was
for neither one; that is, my personal preference is for the
796 engine ton miles. The line value is a very great proportion—
offhand I should say somewhere between 80% and 90% of the total value. That is the biggest item there to be divided.

Q. That is roadway itself?

A. Yes, sir; and the station buildings and station tracks and these things that are divided individually are a small proportion of the total value. I had that in mind when I said I didn't think the difference could be very large when it came to the whole proposition.

Q. I was using stations as an illustration more than anything else in that question. What I mean is this: Under the original formula they provided for the separation of stations and separation of tracks, and built it up by sections.

A. Yes, sir.

Q. Now, if that formula had been followed it would have produced different results, and, likely, very largely different results from following the Frisco modification of that?

A. So far as the division of value of those station and terminal facilities are concerned.

Q. That is true also of the line, isn't it?

A. No, sir. I wouldn't say it is true of the line, because the formula does not provide for the line to be treated in single units like the stations.

Q. As I understand it, it does. Look at that.

A. (After examining formula:) On the third line from
797 the bottom of the paragraph at the top of page 38, line values
are made an exception.

Q. What is that?

A. Begin with the sixth line from the top of the page at the right hand:

"* * * except that line values common to freight and passenger are to be apportioned on the basis of revenue train miles including mixed train miles, which mixed train miles are to be split one-half to freight and one-half to passenger."

That is what I say is a large proportion, somewhere between 80%

and 90%. I think that item comprieses a large proportion of the value.

Q. But take the first part of that paragraph:

"Values are to be located by the Engineering Department to individual stations, other individual terminal facilities and tracks and to certain convenient sections of line."

Now, I construe that as dividing the line up into convenient sections for that division, and this other was an exception as to "common." You understand it much better than I do, but I am giving you my construction of it.

A. The engineers did divide their value into convenient sections and I think they observed the sections prescribed by the Oklahoma Commission. I think this is largely a matter of convenience to them, and we have not followed those sections in applying engine ton miles or train miles for line value. For instance, they divided them into section- sometimes 100 miles of mileage in a section, or perhaps 50 miles. I think they had reference to the original
798 construction, the way the line was constructed.

Q. I understand that; but the point is, the original formula agreed upon by your Committee designated the apportionment of those values by those convenient sections.

A. No, sir.

Q. That is the way I understand that.

A. I don't think you will understand it that way if you will read it through.

Q. You don't think that is susceptible of that construction?

A. I don't think so as to line value.

Q. That is the way I construed it, and where you come to that exception "except that line values common to freight and passenger are to be apportioned on the basis of revenue ton miles including mixed train miles, which mixed train miles are to be split one-half to freight and one-half to passenger." Now, that is the exception only as to freight and passenger and not as to state and interstate.

A. That comprises the line value because all line is common to freight and passenger.

Q. Certainly.

A. I don't think you have in Arkansas, and we have not in Oklahoma, any line which is strictly a passenger line, or strictly a freight line with no passenger business.

Q. I think that is true.

A. So all line value is common to freight and passenger.

Q. Yes, but after you get your line value common to
799 freight and passenger, you must sub-divide between state and interstate.

A. After it has been divided between freight and passenger?

Q. Yes.

A. Yes, but that would not necessarily mean it would have to be divided into sections.

Q. Then you don't understand that has called for a division of the road by sections, but only for individual units to stations, or property like stations?

A. Yes, sir.

The Court: Did I understand you to say that the line values are between 80% and 90%, and the station values the rest?

A. That is my recollection. I haven't the figures before me.

Q. I understand that, but you say you think it is 80% or 90%.

A. Yes, sir.

Mr. Moore: It is shown on Exhibit 18.

A. There is an exhibit here which will show it.

The Court:

Q. Your opinion is, without actual examination, that the line value is between 80% and 90%?

A. Yes, sir.

Mr. Hamilton: Exhibit No. 18 shows that the line value as of June 30, 1913, of the Frisco in Arkansas, was $20,000,000 out of $24,000,000, and that $24,000,000 includes——

800 Mr. Nay: I want to say that what I had in mind was exclusive of equipment. I was thinking of other property.

Mr. Hamilton: Of the track and structures, $20,000,000 is the total, and straight line common to freight and passenger is $17,500,000.

Mr. Hill: That is not far off. You are about right on that.

Q. Mr. Nay, you think a better plan than either of those is to take the engine ton miles to make all these divisions; that is, to take the engine ton miles to divide expenses; and in incurring that expense you make all these divisions between freight and passenger, line and terminal, state and interstate?

A. No, sir, I think it is better—this is my personal opinion and does not agree with that of the balance of the Committee, or at least with the total sum of the opinion of the Committee—to substitute engine ton miles for revenue train miles in this paragraph here, which means that the line value which is common to freight and passenger should be divided between freight and passenger on the basis of engine ton miles. That would not disturb the division of the terminal property, which cannot be measured by miles. The use of it is not made by the engines.

Q. How do you divide that terminal property?

A. On the basis of the maintenance charges.

Q. Of the particular terminal?

A. Yes, sir.

801 Q. Instead of making it on the particular terminal, under this Frisco modification they throw the expenses of the terminal of the state into a common pool and made a division on that basis.

A. That is my understanding.

Q. Do you use engine ton miles or train miles on the branches separately from the main line?

A. Yes, sir, I think that would be the proper way to do it. I think there is where your "convenient sections" would come in.

Q. I presume it is owing to my dullness, but I am unable to get

an explanation that is satisfactory to me as to why the expense of maintenance of way, or of transportation either, reflects the use of this property: I wish you would try again to enlighten me. You gave some reasons yesterday but they were disconnected. We kept breaking in, as we were discussing another phase. Take the broad matter of expense as a factor of use and explain why it is.

A. Well, as I understood yesterday, the Court stated that the Supreme Court did not tell us how to do it, but in reading and studying the Minnesota rate decision I conceived the idea that the word "use" having been found in that decision so much, was our key note; that we should attempt wherever the expense was not actually located, definitely and positively, to be governed by the use in any apportionment, and to endeavor to make an apportionment on the basis of use.

Of course, for an expense like wages of a passenger train
802 crew, that can be assigned directly to passenger and of course, it goes to passenger use, and the similar freight expense goes to freight use. In the maintenance of property, where we had a passenger station, that was assigned to passenger, being used by passengers. If it were strictly a freight station it was assigned to freight. When it was joint we endeavored to apportion on the basis of the use made of the property by the particular class.

These maintenance of way and structures expenses having been built up in detail as far as possible by the use—and when I say "as far as possible" that is a small limitation because we endeavored in every instance to build up these expenses directly by the use, or to apportion them where they were not directly assignable on the basis of the use, and the different kinds of use, by the freight, passenger, line, terminal, state or interstate, which was the final result. That having been done it seems fair to assume that the composite result represents the use of the property and that the value might be fairly divided on that basis.

Q. Yours is an excellent argument in favor of "use," with all of which I agree, but I have not yet the reason why these expenses represent use. You make an excellent argument why it should be used, but merely saying this represents use does not mean very much to my mind.

The Court: I think I understand what Mr. Nay means, but I may be mistaken. As I understand it, the position you take is this: So far as expense of maintenance is concerned it is something
803 that the income or earnings has nothing to do with. In other words, a car of rock, which probably has the lowest rate, or the earnings from it is the lowest, does just as much damage if it weighs 40,000 pounds as a carload of first class freight of the same weight would do, although the earnings on the last named car may be four times as much as on the carload of stone.

A. That is it exactly.

Q. And for that reason you think use is a proper factor to be employed, and not the earnings, or anything else?

A. Yes, sir.

Mr. Hill: That is not my question at all. We all agree that we

must take the use, but I want to have Mr. Nay explain how those expenses represent the use.

The Court: I didn't understand that he says these expenses represent it. He says, here is so much expense: Now, how is it to be apportioned between passenger and freight, state and interstate? He says, apportion it according to the use. If within the state 20,000 cars used all a certain way and for intrastate there were only 1,000 cars used, then the proportion would be 20 and 20.

Mr. Hill: I don't understand that is what they do.

Mr. Moore: As I understand the whole of Mr. Nay's testimony, his evidence is that the expense is not taken as the basis of division but this is the expense that is incurred in this use and that use, and it reflects the different uses to which the property is put.

804 The Court: I don't understand it that way, because all the testimony tends to show that the very largest part of expense of maintenance of right-of-way is occasioned by natural causes, matters which have nothing to do with the running of the trains. At the same time it must be apportioned in some way.

It was shown in the last hearing, and I presume it has been or will be shown in this hearing, that a great deal of damage is caused by the elements. There is a washout or heavy rains and the ballast will disappear and so on, and for that reason there must be some account taken of it; and for that reason they think the only way it can be accounted for is to charge everything connected with the expenditures for maintenance of right-of-way is according to the use made of it. That is the way I understand the testimony of Mr. Nay.

Mr. Moore: That is exactly what I meant and what I tried to say. These expenses are connected with the use made of this property.

The Court: Not incurred by reason of the use, but all the expenses caused by the elements, and natural wear and tear, by the destruction of property—sometimes by fire and sometimes by washouts. But all expenses for maintaining the right-of-way in a proper and right condition.

Mr. Hill:

Q. Has the Court correctly stated your position, Mr. Nay?

A. I think so, yes.

805 To go back a little: Take the apportionment of terminal expenses between freight and passenger, the primary accounts: The formula provides for the apportionment of those between freight and passenger——

Q. We are talking about apportionment of value now.

A. Yes, but the apportionment of value is based on the apportionment of expenses. It is necessary to go back there.

Now, take line expense: If value is divided on the basis of expense then you must go back, as the Court says, to the apportionment of expenses. If you go back there you will find all the way through an effort is made to assign the expenses. There is a large proportion which cannot be assigned but the effort has been made to apportion them on the basis of use. That being the case the result reflected is a proper basis for dividing the value.

Q. But you are assuming all the way through that the expense represents the use. That is the very point I want to hear you on. I agree that you must use the factor that represents the use. What I cannot see and what you must explain is how the expenses represent the use.

The Court: I think you have misunderstood Mr. Nay. The expenses do not represent the use, but here are certain expenses incurred for a year on this track for maintenance of right-of-way. The question is how shall they be apportioned between state and interstate? The revenue theory has been discarded; the ton mile
806 theory has been discarded—it is so indicated by the decision in the Minnesota Case. They say the only way to apportion between state and interstate is to divide between passenger and freight and then state and interstate according to the use that is made of it, regardless of the earnings. In other words, they simply say, every carload or every ton, no matter if it is high class freight or low class freight, or medium freight, is apt to do just as much damage and cause just as much maintenance of right-of-way, as any other ton, and for that reason they have adopted the use of it according to the tonnage which is carried by it.

Mr. Hill:

Q. Is that a correct statement of your position, Mr. Nay?

A. As to the line expenses, yes, and as to a large part of the terminal expenses. Take stations, and you will find that each station is divided according to the tonnage handled at that station. That arrives at an apportionment of the expenses which reflects—expenses do not represent use, but here is an apportionment between two kinds of traffic and when expenses are divided on the basis of use you have something to divide on the basis of value. I do not see how I can make it clearer.

Q. You are assuming your major premise all the way through, and that is that these expenses represent the use. Now, explain that.

A. I do not ever assume that for one minute.

807 Q. You do not?

A. No, sir. The assumption is that when the expenses are divided between two classes of traffic on the basis of use, you then obtain a result expressed in two or more kinds of expenses, which having been divided on the basis of use may then be used for dividing property.

Q. If that is correct, why did you divide this property only on the transportation expenses instead of your maintenance of way and station and terminal expenses, and things of that kind?

A. I stated to you that is a departure by the Frisco which I think favors the state. Personally, I would use the original formula as printed.

Q. It states here in the modification at page 38-A:

"The theory upon which results of the division of transportation expenses were used as a basis on which to divide the value of roadway and structures, is that the transportation expenses themselves

have been divided in minute detail on basis of the use made of such roadway and structures, and that, therefore, the apportionment of such expenses itself reflects the use made of the property."

That is their reason, as I understand it?

A. Yes, sir.

Q. The matter which Judge Trieber put before you was that it was a maintenance of way expense that reflected the use of the way, that you were using as the factor. But in this particular case they are not using that at all, are they?

A. No, sir, but if you will read my testimony when I was there last summer: I stated the reason they used the transportation
808 expense here, as I understand it—but Mr. Hamilton can testify to that better than I can—was because they had only a short period for maintenance of way expenses, two months, I think, and I stated that the transportation expenses over two months would more nearly represent the use of the property by different classes of traffic, because they might not do any work on station property during those two months; but I said then, if you had a long period of maintenance, instead of a short period, my opinion would be different; because maintenance would be a better basis than transportation, not only because of its being maintenance and transportation, but because of the short period. You will find that in the record.

Q. I remember that very well. But the Court has the opinion, as I gather, that you are dividing the way itself and the other properties on the maintenance of way expense because 90% of that is due to natural causes. That is the reason I asked you whether Judge Trieber had correctly stated your opinion about it.

A. I think he has.

Q. But he has not correctly stated the position of the Frisco road in this particular case?

A. I would rather someone else answered that.

Q. These expenses as representative of the use are all based upon the various units that go to make up the division before they are reached—ton and engine mile in one case and ton mile in another, and train mile, probably, in another.

809 A. A ton in the case of station expenses.

Q. That would not go into this because that is in maintenance of way expense, isn't it?

A. No, sir.

Q. That is in transportation expenses?

A. Sure.

Q. This says it is divided into minute detail: Would you call using the ton mile and the engine mile and the ton basis of cars in and out, dividing those expenses into minute detail?

A. Yes, sir. This formula provides for the minutest detail that I have ever seen put before a Court.

Q. That phrase "minute detail" would convey—at least it did to my mind—an actual allocation in minute detail. I discover now it is using these various bases, which are approximations at the best, to reach the result.

A. But those bases are used only in dividing expenses which cannot be definitely assigned to any one class of traffic. Where that is used in connection with two kinds of traffic, there must be an apportionment; there could not be an assignment. An assignment to either one or the other would be wrong.

Q. But those common expenses are very large, aren't they?

A. They are less than one-half of the total operating expenses.

Q. If they were 40%, it would be a very large item to
810 be divided that way?

A. I have not computed the expenses which are common, but in this formula they are reduced to a minimum.

Q. You mean as compared with what has been done heretofore?

A. I think it is a minimum.

Q. You think they cannot be compressed any further?

A. Along that line, that we will never progress so far that we can make an expense which applies to two kinds of traffic apply to one.

Q. You stated yesterday and you have just repeated the statement that wherever you found an expense which could be located to a definite class it is so located?

A. Yes, sir.

Q. Isn't the same thing true of property?

A. Yes, sir.

Q. When you found passenger station, you located that directly to passenger?

A. Yes, sir.

Q. You have provided in your formula for your division of common property on some basis, yet when you got into that you found some particular property is used exclusively for passenger or for freight and you would not apply that basis, but actually set it aside to passenger or to freight as the case may be?

A. That is what I would do.

Q. Would not that be true of state and interstate as well
811 as freight and passenger?

A. No, sir.

Q. Why?

A. I don't know of any property that is used strictly for state traffic and any used strictly for interstate traffic?

Q. If you would find such property it should be located directly?

A. Oh, yes, if I found such property I would assign it directly to either state or interstate, as the case may be—if we found it, but I don't know of any.

Q. I am getting at the principle involved: If you found a piece of property which was exclusively state property, there should be no division of that between state and interstate?

A. There should not.

Q. You take the Memphis Bridge: Isn't that exclusively interstate property?

A. Yes, sir, I think it is. I don't know of any state business over that.

Q. There couldn't be any state business across it, could there?

A. I think not.

Q. Shouldn't that be assigned directly to interstate?

A. Yes, sir, I should say it ought to be if you had your value separate for that.

Q. A piece of track runs out of Fort Smith, the Mansfield branch that runs in and out of the state of Arkansas and Oklahoma
812 for a distance of thirteen miles: There are no intrastate stations on it at all, as I remember.

Mr. Moore: There is state and interstate business done on that branch.

Mr. Hill: How could there be? If there are any intrastate stations there would be, but there are no stations on it except it goes out of the state before reaching to the next station.

Mr. Hamilton: I find Jensen and Mansfield entirely within the state.

Mr. Hill: That is the rails. But what we call the Mansfield Branch is the train that runs from Fort Smith to Mansfield and they use the main line to Jensen.

Mr. Hamilton: The line from Fort Smith to Jensen is our main line. The Mansfield Branch begins at Jensen and consists of 18 miles entirely within the state of Arkansas, upon which there are fifteen stations.

Mr. Hill: Down from Fort Smith to Jensen is about fifteen miles. We call it the Mansfield Branch because it has separate trains, two passenger and freight trains to the coal region, but I am speaking of the stretch of track from Fort Smith to Jensen that has no stations on it which can be reached without going outside of the state. That is, you must go outside of the state, as I recall it, before you reach another station.

Mr. Nay: Now, what is the question?

Mr. Hill:

Q. Isn't that piece of track exclusively interstate?
813 A. From Fort Smith to Jensen?
Q. Yes.

A. (After examining map.) Is Jensen in Oklahoma?

Q. Part of the station is in Oklahoma and part in Arkansas. It is right on the line. Now, that line between Fort Smith and Jensen runs in and out of Oklahoma. Here is Ward in Arkansas.

A. Here is Fenn. It is marked a prepaid station; there must be freight going there.

Q. It would be interstate.

A. It might be intrastate freight from Fort Smith to Fenn, or to Baird, or to Bonanza, or to Jensen.

Q. No, there it runs into Oklahoma; here is the point I make: I see some little sidetracks are put down there on that map that I didn't know of. But from Fort Smith to Bonanza before that train gets into Bonanza it goes into Oklahoma; before it gets into Jensen it goes into the other state. There may be a few sidetracks for freight, but the point I make is, isn't that exclusively an interstate piece of track?

A. You have brought up an entirely new point. You would have

to call every little piece of track that crosses a state line an interstate track. From this station to that you would have to call it exclusively interstate. Just like the Memphis Bridge: Of course, that could be done, but I don't imagine it would make any appreciable difference in the results. But whenever you cross a
814 state line, on that theory you could call it a bridge from one state to the other, you would have to take a mile or two on each side of the state line and call it exclusively state. No state traffic can cross the bridge at Memphis because it goes from Arkansas to Tennessee.

Q. That is in and out of there for a distance of 13 miles.

A. But the roster shows there are stations there, Ross and Fenn and Bonanza, and all in Arkansas and contiguous stations. There might be shipments between them individually and between Fort Smith and those stations.

Q. Before you get to Fort Smith you must cross the line.

The Court: How many stations in Arkansas are there coming from Fort Smith east before you get to Oklahoma?

Mr. Hill: I see this time card puts down some side tracks, but so far as towns are concerned the first is Bonanza.

The Court: Coming west from Jensen to Fort Smith there are no stations in Arkansas?

Mr. Hill: Commencing with Jensen you go through the tunnel, so Jensen is in Arkansas. It is right on the line. Then you go through the tunnel into Oklahoma and come back into Bonanza. Between Jensen and Bonanza you go into Oklahoma; leaving Bonanza there are no other towns but there are a few stops in there that Mr. Hamilton has noted in his book. Between Bonanza
815 and Fort Smith they cross the line, I believe twice. There may be two or three little sidings there, cattle chutes, that ship from one to another and still be in the state, but speaking of towns where business is there could not be any at all.

The Court: If they charge only the use of it for intrastate, then, of course, it would make no difference. The apportionment, if there is a little business, would be small; and if nothing, there would be nothing.

Mr. Hill: If they made the apportionment on that eleven or thirteen miles that would be true; but they throw that into the entire state value and apportion it on the value of the entire state, when there is practically nothing there but interstate.

The Court: If there is no state business that proportion of the track is not charged with it.

Mr. Hill: Yes, it is. They are not individually, each piece of track, but throwing it into the whole. If they found in Arkansas 10% of the business is intra-state then we would be charged with the 10% on these thirteen miles, which is all interstate.

The Court: Then the balance of the interstate would be reduced that much?

Now, take the Memphis Bridge. There is practically nothing charged to it in the apportionment by reason of the fact that every-

thing that goes on the Memphis Bridge is charged to interstate and it reduces the intrastate to that extent.

816 Mr. Hill: Yes, but the value is put in there.

The Court: But if there is nothing charged for the use of it, then it equalizes itself.

Mr. Hill: No, your Honor, it does not equalize itself. Take something work- $1,500,000. That is exclusively an interstate property. Now, if the intrastate business in Arkansas is 10% we would be charged with $150,000 of that figure.

The Court: That is proper and right because no part of that business is Arkansas business.

Mr. Hill: No part of it.

The Court: But when you come to Fort Smith business there is a small part of it. If the income from that part of it is from intrastate business only $1,000 a year and the interstate business is $99,000, then it reduces the proportion, of course, to that extent of the entire business in dividing it. As to the bridge, that is not used at all for intrastate and it necessarily cannot be used.

Mr. Hill: I brought up the Fort Smith proposition because I think it is practically like the bridge. Mr. Hamilton has some stations there that I never heard of. Say Ward, which is a cattle chute south of town.

The Court: We all know that there are places where the railroads are required by the Railroad Commission to establish stations and sometimes they are only stopping places, just a platform, and

817 there are flag stations. Of course, where there is a place like that there is bound to be some business or otherwise the presumption at least would be that the Railroad Commission would not order a railroad to stop there and receive or unload freight, unless there was some freight to be received or unloaded.

Mr. Hill: There seems to be two or three little sidings down there. They cannot get to Fort Smith without crossing the line. That would be 1/10 or 1/100 of the business down on the Mansfield Branch, which is where the heavy coal traffic is done. So 1% of the business is intrastate, but in the state as a whole 10% of the business was intrastate. By putting in these thirteen miles of track we were charged with 10% of its value instead of 1/10 of 1% of its value.

The Court: If it is only 1% that would tend to reduce that. They would use just as much of that line as on the other part and it would be 11%, but by reason of the fact that there is very little of it used it reduces the entire amount.

Mr. Hill: It is so small you would ignore it; but I am saying, for the purposes of my question, that there is none at all. It may be a little inaccurate.

The Court: There is sure to be some little and it is charged to intrastate business.

Mr. Hill: They can't find a $100 in a year.

The Court: Then there would be only $100 charged to

818 intrastate. As they run only fifty cars over that part of the track then there would be only fifty cars charged.

Mr. Hill: That is not the way it is made up. We would be charged say 10% of the value of that track.

The Court: In getting at the income from intrastate or interstate to say how much of it is used, take the use.

Mr. Hill: Take $50 out of several hundred thousand.

The Court: Then the intrastate is charged for the $50. That is adopting the revenue theory for that purpose. It reduces the balance of it to that extent.

Mr. Hill: That would be all right if you were selecting that particular piece of track, but that is not so. This track which is used exclusively for interstate business is charged with say 10% of the intrastate value. That is what I question.

The Court: You take a small town near a state line. Take Mammoth Springs: Now, I presume that 98% of the business is interstate and 2% only is intrastate. In figuring how much is interstate and how much is state, in the whole state, that is taken into consideration, that there is only 2% there and for that reason it reduces the balance of it. There may be some portions of the state where the intrastate business is 75% and the interstate only 25%. I don't know whether that is true, but it may be possible. There may be a branch
819 which is almost exclusively intrastate. I know you frequently find it in New England, where there are largely manufacturing centers. Where that is the case, where there is only a small proportion, it reduces to that extent the business of the whole line; but, of course, where it is not used at all, and cannot be used, as on a bridge, that is entirely different.

On the other hand, Judge Hill, if the bridge is taken out in a valuation of the property, then there must also be a change made in the apportionment, if the apportionment of expenditures was made upon a basis which included the bridge.

Mr. Hill: All right.

The Court: At least, that is the way I would judge it. I am not an accountant, but it seems to me it would have to be done that way.

You gentlemen here who are accountants, am I correct?

Mr. Nay: You are absolutely right. If you take out a part of the property you must take out that which represents the use of it. You move your line in a few miles and you must leave out the revenue—if you apportion on that basis—or on ton miles, or whatever basis you use.

Mr. Hill:

Q. Mr. Nay, you testified here before that there was a loss to the interstate and again to the intrastate by the two cent passenger rate, growing out of these border line stations?

A. Yes, sir, growing out of the buying of tickets and the
820 paying of cash fares to and from the border line stations by persons who otherwise would have paid interstate fares.

Q. Do you consider that a large factor in the matter?

A. I consider it a very substantial factor, yes.

Q. When did that condition exist?

A. It has always existed, in my experience, wherever the difference

between the interstate fare and the state fare was sufficient to justify a passenger to buy to and from the border stations.

Q. Take it in 1907, when there were two cent fares in force in Missouri, Arkansas and Oklahoma, all the border lines were in Arkansas, weren't they?

A. I think the interstate rates were reduced at that time to the basis of the intrastate rates.

Q. That is, two cents?

A. Yes, sir.

Q. There was this condition: Take the first half of 1907, which is the period we have under inquiry here: That condition did not exist in the latter part of 1907, of increasing the intrastate at the expense of the interstate rates?

A. I would say it did not, and modifying my answer to this extent: If the interstate rates had been reduced prior to that time. I don't remember whether they had or not. I know some of these state rates went into effect immediately, as an emergency was declared to exist by the Legislature, and it took thirty, sixty, or ninety days longer to publish and get the interstate rates into effect.

821 If this period under consideration here was after the interstate rates were reduced, that is a matter of record, I should not think there would be any border line buying.

Q. I understand that to be the fact for the latter part of 1907, that it was in effect in all these states. Isn't that your recollection, too?

A. No, sir. I think, for example, in Oklahoma the two cent fare went into effect late in 1907, October or November.

Q. November, I am told, but I thought it was earlier.

A. And in Arkansas the rates went into effect in April. Of course, the interstate rate between Arkansas and Oklahoma would not be finally adjusted until the Oklahoma rate went into effect.

Q. When did the Missouri rate go into effect?

A. I think it was July 1st. Those are all matters of record. We had eight states. The Rock Island adopted the two cent fare within two, three, four or five months.

Q. In November and December, 1913, which is the period that was used as a test period here, this buying at border lines had changed the relation between state and interstate substantially, according to your views?

A. Yes, sir.

Q. Mr. Nay, there has been quite an increase of wages in the last series of years, say since 1907, our period of inquiry, hasn't there?

A. Yes, sir.

822 Q. Have the wages increased proportionately for all classes of train employes?

A. Why, I think so, Judge Hill.

Q. Haven't the train men gotten more increases proportionately than the station force and the clerical force, and people of that kind?

A. Well, now when you come to the clerical force, I agree with you.

Mr. Moore: Are you acquainted with the conditions on the Frisco road in that respect, Mr. Nay?

A. What I am testifying now I will say generally is in regard to the Rock Island.

Mr. Moore: I don't think that is competent.

Mr. Hill: I think you put him here as an expert on railroad conditions in the southwest.

The Court: He may state if he knows whether wages generally have been raised on all railroads, and to what extent.

Mr. Hill: Here is the point I want to make. I have heard it as a matter of information. I want to get it as a fact, if it is a fact, that the wages of train crews have increased out of proportion to other railroad men, clerical men or section men, or laboring men. Those are general statements I have heard and I want to know from Mr. Nay whether or not that is a correct proposition.

A. My judgment is that it is correct so far as it relates to clerks. I don't think the train men have had any advantage over
823 shop men or yard men, or various classes of organized labor. The clerks are not organized and neither are the section men organized. I would not say, without an investigation, that the increase of the wages of train men, yard men, shop men, and so on, had been greater than for section men, because with the section men that is something that is largely regulated by the law of supply and demand. In some parts of the year we will pay for section men 30% or 40% higher wages than we will at other parts of the year. That labor is not organized.

As to the clerks, I think it is fair to say that they have not been raised in proportion to the train men or yard men and other classes of organized labor.

Of course, I think I see the point of your question, that all these clerks perform labor on the different classes of traffic just the same as the train men. So whatever increase or lack of increase there is has been spread over the different kinds of traffic.

The Court: Mr. Hamilton, I want to ask you something.

In determining the expenses incurred by reason of maintenance of right-of-way, how do you take it? Just for that one year, or for six months, or do you average it for a series of years? The reason I ask is this: Sometimes, judging from the newspapers, when times are hard there is very little expended, comparatively speaking, for maintenance of right-of-way and improvements. On the other hand, when business is good and money is cheap there are millions expended on the right-of-way.

824 You take a bridge: Sometimes a bridge will be used for twenty or twenty-five years; it is in perfect order, and then it is found the bridge is not safe and a new bridge is to be built. In your calculations, did you apportion those things or did you take them for a certain period—what is expended for maintenance of way?

Mr. Hamilton: We did this: Each year for which we submitted exhibits, stands on its own bottom. Each period is shown separately

on a separate exhibit. That includes all the maintenance of way and structures expenditures in Arkansas.

The Court: For what year?

Mr. Hamilton: For 1910, 1911 and 1912.

The Court: Each separate year?

Mr. Hamilton: Yes, your Honor, in each exhibit.

For the purpose of ascertaining what maintenance expense we had on terminal and on line structures we had our section foremen keep a record of individual tracks and sections for two months, and we used the proportion of those two months of line and terminal to divide all the other years.

The Court: I don't know about your road, but I remember a very few years ago the Iron Mountain road built a new bridge across the White River. Of course, that was chargeable to maintenance of right-of-way. It is an extraordinary expense that would not
825 be again incurred for maybe forty years. And in 1912, there was a considerable overflow in the territory traversed by the east and west line of the Frisco. There, naturally, the road was put to some extraordinary expense to put that track into proper condition after that. In your accounting do you charge just the actual money that was paid out every year, or do you take an average of a certain number of years to ascertain how much it costs?

Take a dwelling house or a store building, and I believe insurance men figure that it takes 2% a year on the cost to keep it in proper condition. The first five or ten years may be nothing will be required, and then after that it may need recovering, or to be painted, or something of that kind, and there would be an extraordinary expense incurred which may not need to be incurred again for the next five or ten years. In making up your accounting figures did you charge actually what was spent that year, whether an extraordinary expense or not, or did you average for a certain period of years, which would cover about the actual expenses for a year on an average?

Mr. Hamilton: The actual expenditures for maintenance of way for each year is charged in our exhibits, whatever was actually spent.

Your Honor spoke of the flood damage here in the Mississippi Valley. There was a great deal of work done there in repairing the damage done by that flood, which was not charged to operat-
826 ing expenses. We raised our track about three inches between Marked Tree to Bridge Junction, in order to protect it against further overflow. That was charged to "additions and betterments," or to "Capital Account."

The Court: But I am speaking now of such a matter as say an overflow. It is necessary to incur considerable expense, first, to try to keep the water out; then, after the water comes it does considerable damage, which has to be repaired. That goes to maintenance of right-of-way. Sometimes a track will be washed away; sometimes the ties will be ruined; sometimes the stone will be washed away. Now, the expense of replacing that is, of course, an extraordinary

expense, something not occurring every year. Is that all charged that one year or did you take a series of years?

Mr. Hamilton: We are required by the Interstate Commerce Commission to charge the expenses into the year they are incurred.

The Court: Did you do that?

Mr. Hamilton: We followed our books exactly and charged the expenses in the year incurred.

The Court: You take here a few years ago, the Fort Smith Branch was practically re-built——

Mr. Hill: That would go to "Additions and Betterments."

Mr. Hamilton: I am not sure of that.

827 The Court: After it is re-built, for the next three or four years there will be very little work necessary in order to keep it in repair. But after a road has been in operation four or five years, naturally, there would have to be a great many ties replaced, more than at first, and the rails would have to be replaced, and more ballasting would have to be done. Now, that expense would be incurred in just that one year. You charge it to that one year, and then suppose a rate case comes on; the showing for that one year would be doing a great injustice to the state. On the other hand, if it is based on a year when very little expense was necessary to be incurred because the year before it was necessary to do so much, then it would be an injustice to the railroads to take it for that one year.

Take it just a few years ago on the Iron Mountain Railroad, when Mr. Bush was first employed. They set aside several million dollars to put the road in better condition because it had run down. That year I have no doubt the expense for maintenance of right-of-way was five times as much as the year before, or perhaps five times as much as the year after. To charge that would be an injustice to the state; and, again, to take the next year, when nothing was necessary because of the millions spent the year before, to charge nothing for that year would be an injustice to the railroads. That is the reason why I want to know if they take an average.

828 Mr. Hamilton: I think I can answer you best in this way: I think the figures will show, and I will be very glad to bring them here, that the expense for maintenance of way on the Frisco in Arkansas per mile per year—a good yard stick to measure by—as compared with other southwestern railroads and compared with the balance of the railroad, is moderate.

The Court: If there is an exhibit showing what expenditures for a term of eight years were necessary, that would strike a fair average; because, no doubt, during those eight years there would be these extraordinary expenses incurred and larger repairs necessary in some years than in others. There is a great deal of work done in some years and very little done in others. That would give a fair estimate, but to take any one year on maintenance repairs might work a great injustice either way, either to the state or to the railroad. I don't think it is possible the expenditures could be the same every year for a period of eight or ten years.

Do you think so, Judge Hill?

Judge Hill: That is apparent.

The Court: After a house is first built there is very little expense for repairs. Then after four or five years you must repair the roof or the plumbing, and the whole of it costs more for expenditures.

Mr. Hamilton: It seems to me the final question is, how
829 much do we spend on each mile of track and is it a level amount? Judge Hill says it is apparent we do not, but I think the figures will show.

The Court: Then the Court can average it and see how much it takes a year on an average to maintain it. Do you think so, Judge Hill?

Mr. Hill: I have been contending that for five years, your Honor.

Mr. Hamilton: I will be glad to bring figures here and submit them.

The Court: Submit a copy first to Judge Hill. It applies to many other things. Take the damages for personal injuries, and take it on equipment. There is evidence which will enable the Court or a Master to make allowances for wear and tear of equipment according to use.

830 Redirect examination.

By Mr. Moore:

Q. Mr. Nay, in your former cross-examination you were questioned by Judge Hill as to the propriety of using one period to affect conditions of another, by earnings, and you stated, if I remember, that where operating conditions were similar that the result would be correct: I would like you to state what were the operating conditions that you had in mind when you made that statement.

A. If I understand, Judge Moore, that refers to where one period is taken as representative of a longer period or, perhaps, previous years, and that the operating conditions would be similar or normal, I forget just the language that was used——

Q. That was practically what you stated, that they would be similar where it was——

A. One of the things would be the road mileage, the miles of road operated. If the mileage had not changed much that would be one element to be considered as to the normality or similarity of the conditions.

Then a second one would be the load per train, the number of tons per train, or the passengers per train, if that had remained much the same. Of course, when it gets away from the road mileage into operating statistics no periods would be just the same, but if they were similar then that would be another thing to consider.

831 Another thing would be the average length of haul of the freight or passenger: If that had remained substantially the same it would indicate a similarity in the traffic and conditions, one of the things to be considered.

Then there is the relation of the empty car movement, in the case of freight, to the loaded car movement. If there was a decided

difference in that percentage from one period to another then that would indicate that there was something different in the two periods. If they were substantially the same, not far apart for the two periods, that would be one of the elements to be considered.

There is also the relation of the intrastate and interstate traffic: If they were substantially the same, that is, substantially the same percentage of the total traffic was intra and inter it would indicate similar conditions.

Another thing is the assigned expenses in proportion to the traffic, that is, in this case the proportion of Arkansas expenses to the total of the road, and the proportion of the traffic to the total of the road. If in one period the expenses should be, say 15% of the total, and the traffic should be, say 18%, and in another period the expenses should be 13, 14, 16 and 17 per cent, and the traffic be within a few percentages, it would indicate somewhat similar conditions.

Those are six items that I have made a memorandum of here that would indicate a similarity or a difference in conditions ac-
832 cording to whether the relations of the various items were similar or different. No one of them could be considered to govern, but they should all be taken in connection. Possibly there might be others, but those are the six things that came to me when I gave this matter some thought.

Q. Those are the conditions, then, which you think would affect the question as to whether one period could be taken as representative of another?

A. Yes, if all those taken together—the relation between the road mileage about the same, the relation between state and interstate, the empty car mileage and the loaded, and so on, were similar, then I should think one period might be fairly taken as representative of another.

Q. Where the intrastate haul is the same in two periods and the interstate haul is shorter in one of those periods than the other, what would be the effect of the expense per ton mile in the two classes of traffic?

A. Other conditions being equal or similar, my judgment is that in the period where the interstate haul was shorter a greater proportion of the expense would be assigned to interstate than in the period where the interstate haul was longer, because——

Q. You mean per ton mile, do you?

A. Yes, sir; I understand that the average haul represents the distance that one ton is carried. If the average haul is one hundred miles—we say the "average haul"—that means that the average of all tons is one ton carried one hundred miles.

833 Q. Why is it that the shortening of the average haul would increase the cost per ton mile?

A. Because, other things being equal, the expense is increased as the average length of haul is shortened. It is more expense per unit of traffic when the haul is ten miles than when it is twenty miles, and when the haul is shorter, other conditions being equal—of course, these must all be taken into consideration—the tendency

would be to increase the expense per unit of traffic, and on the other hand, as the haul lengthened the expense would be decreased.

Q. Would the terminal expense over the haul have any effect upon the——

A. Yes; suppose your terminal expense is thirty cents a ton: If your average haul is thirty miles that spreads a cent a mile over the haul. If your average haul is sixty miles and your terminal expense remains the same, thirty cents, then it is spread one-half cent over a mile and that is what I mean by saying the tendency is to decrease the cost per ton mile as the average length of the haul increases, and vice versa.

Mr. Moore: If the Court please, I have not been able to see the evidence yet, but I do not believe that I will have any re-examination based upon the cross-examination of Mr. Nay on yesterday and today. The cross-examination yesterday related almost altogether, I might say, to the formula that was used by the state in former cases, and the changes of view of Mr. Nay——

834 The Court: I think the object of Judge Hill was to have explained this——

Mr. Moore: I understand, but I do not think it has any material bearing on the merits of this formula. I should want to look over that evidence before I determine that I want to re-examine Mr. Nay upon that, and I have not been able to do so because I have not been able to get the evidence as yet, so at present I shall omit any examination on the cross-examination of yesterday.

The Court: I do not suppose that counsel in this case intend to be very strict as to the rules of evidence in re-examinations, but that if either counsel even after he has closed his case wants to call any one——

Mr. Moore: That is what I want to say: I want to reserve the right to recall Mr. Nay if I should desire to do so. That is all I care to do now.

835 T. A. Hamilton, recalled, testified on behalf of the complainant, as follows:

Direct examination.

By Mr. Moore:

Q. Mr. Hamilton, something has been said this morning in the cross-examination of Mr. Nay in regard to the cost basis and the division of expenses, as well as the division of the value of property: You made some considerable investigation of that, did you not, in this and in former railroad rate cases?

A. Yes, sir.

Q. That matter was gone into to a very extensive degree by the experts for the state, as well as the Railroad Company, in the Iron Mountain Railroad Case that was tried in this Court some years ago, was it not?

A. Yes, sir.

Mr. Hill (to Mr. Moore): The division of value?

Mr. Moore: No, the division of expenses—which is followed by the division of value.

Q. I want you to state, Mr. Hamilton, your own views in regard to the matter that was discussed this morning with Mr. Nay as to the use of that basis in the division of value.

A. I understand the——

Mr. Hill: I understood Mr. Hamilton went into that fully in his former testimony.

Mr. Moore: Not in the particular that you were asking about this morning, as I recall it.

836 Mr. Hill: I remember it very well. This seems to be a repetition. I have no doubt Mr. Hamilton did not change his mind about it since he testified before. (To Mr. Hamilton:) Have you?

Mr. Hamilton: No, sir.

Mr. Moore:

Q. Do you recall whether you went into that in your former examination, I mean, in the respect we are speaking of now?

A. As I recall it, Judge Hill asked—I do not recall the specific language, but the proposition was how a division of expenses, or, rather, the concrete total effect of a division of expenses could fairly be used to divide the value of the property, and to start with I quoted him Mr. Ludlam and Mr. Wharton as a text, both of whom, as the record in the other case shows, subscribed to that basis, and then I gave him my own reasons which, in succinct shape, are that if——

Mr. Hill: It is just a matter of encumbering the record. I knew he had gone over it.

The Witness: I think ten words will finish it, Judge Hill. (Continuing:) —which are that if you have used the use functions, or functions of the use, rather, of the property in dividing your expenses, and the uses in the various channels of the business being so different, the concrete effect of use can meet only on the common ground of the concrete total expense divided on these various use bases, and that, therefore, taking your expense figures after they are divided, not as expense per se, but as figures
837 which represent a division of use, that that is a fair way to divide the value of the property.

Mr. Moore:

Q. That subject was gone into by both Mr. Wharton and Mr. Ludlam, the experts for the state in the former case, was it not?

A. That is my recollection and I think the record will show it.

Q. I have the record marked here, and I would like you to turn to it there and read the views expressed by them in that case in regard to that matter.

A. At page 1013 of the printed record, Volume 2, Mr. Wharton was asked.

"Q. Have you given thought and investigation to that subject, Mr. Wharton?

A. I have given it considerable thought, to the subject of the proper division of the property, yes, sir.

Q. Have you any opinion of what is a more nearly correct basis than the revenue basis for that?

A. My opinion is that the cost basis is the more correct basis for the division of the property, owing to the fact that the cost taking into consideration the element of extra use of property and the extra property required, if any extra property is required in the service performed, that it would be the best measure of the property required.

Q. That would take into consideration, then, all of the use, whether extra use or not?

A. It would take into consideration all of the use, the cost basis."

And on page 1317 of the same volume of the printed record, Mr. Ludlam was asked his opinion of the revenue division for the value of property and answered:

"I think that division is wrong on account of the fact
838 that the gross earnings, which fluctuate with every change in rate, are not, in my opinion, a fair basis to divide the property. I think you will have a more equitable division if you will apportion your property on the basis of the cost. In my judgment, the cost will represent more correctly the use made of the property by the different classes of business.

Q. Suppose there was an increase in state rates without any exact proportional increase in interstate rates; what effect would that have on a division of the property or a division of the expenses"——

That goes on into the division of expenses, and the property discussion, I think, stops there.

Q. What was Mr. Wharton's connection with the case in which he gave that testimony and with the formula that was prepared in that case?

A. Mr. Wharton devised the formula. I was associated with him in the preparation of the data which went to make up its compilation.

Q. Who is Mr. Ludlam and what was his connection with that case?

A. Mr. Ludlam is one of the partners of the firm of Haskins & Sells and reputed to be one of the best cost accountants in the world today. We took as a text book in that case Mr. Ludlam's and Mr. Wharton's dictum.

Q. Attention has been called this morning to some change made in the formula, which appears at page 38-A of Exhibit 1, in connection with the value of the property: I want you to explain that, Mr. Hamilton, and the effect of the changes there; also state what the condition of the Frisco road is in regard to terminal stations in this state.

839 A. That is rather a general question; I did not get it all.

Q. Just take it up and explain the change that has been made there from the printed formula, the amendment that you have made on page 38-A.

A. The modification shown on page 38-A—and I have reference now to the apportionment of roadway and structures values, between freight and passenger, and line and terminal—was to make the division on the basis of transportation expenses, and the formula as printed provides for the apportionment of the straight line property as between freight and passenger on a basis of the revenue train miles. It provides also for the division of the value of individual station facilities and tracks between freight and passenger, line and terminal, in the ratio of the percentages determined for the apportionment of the maintenance of such facilities.

Judge Hill asked me why I had made my line division of property on the basis of transportation expenses and not upon the engine ton mile which I had used to divide the maintenance of way expenses. At a matter of fact, I thought that the maintenance of way expenses themselves, in this period, might or might not be reflective as between line and terminal. I know that the transportation use of the property, in a broad sense, was full every day in the year and, therefore, used that.

Following Judge Hill's suggestion we re-worked those
840 figures using the engine ton mile division. I have not prepared them in the form of an exhibit, but I have the effect of it here and have all the detail papers, which I will be glad to submit to the accountants for the state. I can make an exhibit out of it if desired, but I have not had the opportunity as yet.

I have made the apportionment of line values on the engine ton mile basis, as suggested by Judge Hill, and, taking the year ended June 30, 1913, as an example—we had time only to work up one of the years—I found the concrete effect of it is to reduce the value of property assigned to intrastate freight, 19%; to increase the value of property assigned to intrastate passenger, 18%, and to make little or no change in the total intrastate values.

Carried with that change in the value of property is a change in the apportionment of taxes, which also goes to affect the return upon the various classes of intrastate business. The concrete result of the change, applied to Exhibit No. 22, is to change the return on intrastate freight from 1.07% to .23%—that is, 23/100 of 1%—to eliminate entirely the return of almost 2% on intrastate passenger, and to leave the return upon the total intrastate business so small that you cannot find it with a microscope.

So, really, the engine ton mile basis makes no vital difference
in our figures. I might have used it; I believe in it, but
841 for the reason stated, I used the transportation expense. I have heard a great deal of commendation among railroad men of the revenue train mile. I have not worked that out here, but I believe the engine ton mile is, perhaps, a more reflective basis. If applied the other might show somewhat similar results.

Summing up the whole proposition, the change that we would make in our Exhibit No. 22 would still leave us a deficit of $32,000 on our total intrastate business. Of course, that is not affected by the change in the property values on the engine ton mile basis of distribution except as it switches the taxes a little bit, and that is a

negligible change. We still have not sufficient to pay expenses and taxes on the face of this Exhibit, so really the property value division becomes immaterial.

Q. Attention has been called to the fact that values are not located at individual stations on this modification you made, but that the stations are all lumped or combined: Explain that.

A. I understood the criticism to be that we should have set aside straight passenger facilities and straight freight facilities, and not have put them into a pool and divided them in a lump; that we should have divided the value of each station structure and each piece of track separately instead of dividing them in total.

As to the first proposition, if we should have more than two (and I don't think we have two, if my memory serves me) straight passenger stations in the state of Arkansas, I don't know where
842 they are. Most of them, with a few minor exceptions, are of the common one-man type.

Suggestion was made that we should have kept our terminal facilities separate between passenger and freight. I don't recall that we have a single passenger track facility in the state which is exclusively passenger. We have some coach cleaning tracks at stations, but they are not terminal in this formula; they are line. Practically all of the great main line property, the line proportion that we have here, is used in an intermingled way commonly by the freight and passenger service. If we had undertaken to set out each station and divide it separately on the basis of its use, I dare say we would have been working on this property value division yet, but the fact is that we did lump it and I do not believe that any great violence has been done in the division of property values by reason of such lumping, certainly not as long as our exhibits show we have not enough to pay expenses and taxes, and the property value becomes immaterial.

Q. Mr. Hamilton, what has been the change in wages of employes on your road since 1907, as between the different classes of employes?

A. There has been quite a considerable increase. I have not the percentages in mind at the present time except in some instances: Our engineers and firemen have come in for an increase, which they have secured; our trainmen have; our switchmen have, and,
843 while our station agents are not organized, as Mr. Nay puts it, not members of a labor organization, there has been a very material increase in their pay. We are now paying them overtime, which we did not pay some years back, certainly not in 1907. We have increased their pay because we have largely widened the scope of their duties.

We have increased the pay of our section men quite materially, almost 10%—possibly more; I know it has been quite a material increase.

The shop men have had one increase. I think the men in the car department, two. I know the machine shop, the boiler shop, have had one.

So that an increase has been made in practically all classes of railroad labor except, possibly, the clerks at headquarters and general

offices, and even there, there has been some growth on our railroad with which I am personally familiar.

The Court (to Mr. Moore): Is not this a repetition to go through all of this?

Mr. Hill: Yes, sir.

The Court: It seems to me you have gone over that before.

Mr. Moore: No, we have not. Mr. Hamilton was not questioned about that; it was drawn out by Mr. Nay this morning.

The Court: There is no claim on the part of the state that since the suit was instituted the expenses have been reduced or the
844 earnings have been increased. There has been no amendment made to the pleadings with a claim that since the institution of the suit there has been a further increase in expenditures or further burdens placed upon them, or anything of that kind, has there?

Mr. Moore: No. If the Court please, my only purpose in drawing this out is that it was brought out by Mr. Nay, and I want to get the facts on the Frisco road. Mr. Nay stated conditions on the Rock Island road.

The Court: The questions Judge Hill asked were material because he asked them in connection with the expenditures at the terminals. He wanted to show that while it was true there was an increase in trainmen, there was no corresponding increase in any of the clerks employed at terminals, and those employed at terminals constitute the largest number. For that purpose it was admissible.

Mr. Moore:

Q. Mr. Hamilton, Judge Hill asked you to ascertain whether the Frisco Railroad pays for ice and water used on the Pullman cars: Have you that information now?

A. Yes, sir; I find that the Railroad pays for the ice and water used on the Pullman cars.

Q. Have you made up a statement which shows the different intrastate rates, freight and passenger, that were in effect on the Frisco Railroad during the periods covered in this case?

A. Yes, sir, I have prepared such a statement.

845 Q. Will you file that as an exhibit?

A. Yes, sir. I offer it as Exhibit No. 33.

Q. Have you made any investigation of operating conditions in 1907, for the purpose of ascertaining whether there was any congestion upon that road during the four months covered by the exhibits?

A. I have made such an investigation and have prepared a table which shows the average miles per freight car per day, made upon the St. Louis & San Francisco Railroad for the fiscal years ended June 30, 1908, 1909, 1910, 1911, 1912, and 1913; also for the four months ended December 31, 1907, 1908, 1909, 1910, 1911, 1912 and 1913, and for the two months of November and December, 1913, which were our test period.

There can be no better index of the unrestricted and normal movement of freight traffic over a railroad than the average miles made

by the freight cars upon it each day. This table considers all of the cars that were on the railroad whether they were moving or standing still, and all of the mileage that was made each day by all of the cars which actually moved. Dividing the total number of cars resting upon the tracks of the railroad into the total miles made by freight cars each day produces the average movement of the freight car. It will be noted that in November and December, 1913, the average miles per car per day was 22.29 miles. I think I showed the rough copy of that to Mr. Oliver two or three weeks ago.

As I said, the exhibit shows that in November and De-
846 cember, 1913, our test period, the freight cars on the Frisco moved an average of 22.29 miles per day. In the four months ended December 31, 1907, they moved an average of 22.18 miles per day.

I know of my own personal knowledge that there was no congestion on the Frisco in those two months in 1913. The movement was but 1/10 of a mile greater per car per day than it was back in the four months of 1907. The fluctuations in the other periods run from two to three miles on an average, which are a negligible quantity.

Q. Will you file that exhibit as Exhibit No. 34, Mr. Hamilton?

A. Yes, sir.

Q. Some comment has been made in this case on the proposition that the earnings credited to the state for the four months ended December 31, 1907, as shown on Exhibits 27 and 27-A, were not a proper assignment: Can you tell how the earnings assigned to this state in that period compare with other periods covered by the exhibits that have been filed in this case?

Mr. Hill (to the witness): Have you an exhibit here on that?

A. In that connection I have prepared two tables, the first of which shows a comparison of the earnings of the entire St. Louis & San Francisco Railroad for the fiscal years ended June 30, 1908, 1910, and so on down to 1914, inclusive, with the earnings for the
847 four months of September, October, November and December, included in each of those fiscal years. It will be noted by reference to the exhibit that for the months of September, October, November and December, 1907, the gross earnings were 36.98% of the total earnings for the fiscal year of which those months were a part, and that in no subsequent fiscal year have the earnings of those same four months—September, October, November, and December—been as large a proportion of the whole year's earnings of the entire railroad, so that it seems to show conclusively that whatever may be said as to the lapover of earnings into or out of the four months ended December 31, 1907, if there was any abnormality in it, it was to the effect that we adopted for that exhibit the period which showed the greatest earnings for those given four months in any fiscal year since that date, including that year itself.

I offer that as Exhibit No. 35.

I would like to offer the second table, if I may, as Exhibit No. 36.

Exhibit No. 36 shows, first, the percentage which the total earnings assigned to Arkansas in our exhibits which have previously

been filed in this case, are of the earnings of the entire railroad for each of those periods. The exhibit shows that in the four months ended December 31, 1907, the assignment of earnings to Arkansas was 9.94% of the total earnings of the railroad.

In the next fiscal year, that is the year ended June 30, 1910, it was 10%; 10.25% the next year; 10.47% in the next year,
848 and 10.24% in 1913, a total range of ½ of 1%, but it must be borne in mind that the basis of intrastate rates in Arkansas was different in practically all of these periods—some times we were on a two cent basis, sometimes two and one-half cents, sometimes three cents, sometimes we charged the Commission's Standard Distance Tariff, then for a short period the Railroad's own voluntary rates, and then the Court tariff.

The second table in the exhibit shows the assignment of earnings to Arkansas which would have been made if the intrastate rates had been upon the same basis in all of the periods; that is, if we had charged three cents a mile and the Court tariff rates, which was done in 1913, and it will be seen by reference to the exhibit that all of them were 10% and a small fraction in all of the periods. So that really the assignment of earnings to Arkansas has been fair. If it was fair in 1913, when we made a minute detail assignment of it, way-bill by way-bill, item by item and ticket by ticket on the passenger side, it must have been fair back in 1907, when we get the same percentage of the entire line earnings assigned to Arkansas when the rates were upon a level basis.

Q. On your former examination you stated the percentage of empty freight car mileage to the total freight car mileage in this state during the four months ended December 31, 1907: You stated it was 29%, and you were asked to ascertain what the percentage was for the months of November and December, 1913: Are you prepared to state that now?

849 A. Yes, sir. The percentage of empty freight car mileage to the total freight car mileage in Arkansas on the Frisco was 29.41% in November and December, 1913, just the same within a minor fraction—less than ½ of 1%—as in the four months ended December 31, 1907.

Q. On your previous examination you stated to the Court that you would prepare some exhibits bearing on the normality of the period November and December, 1913: Have you prepared those tables and exhibits?

A. Yes, sir.

Q. I wish you would introduce them and make your explanations in regard to them.

A. I offer the first as Exhibit No. 37, which shows the road mileage operated in Arkansas for the entire railroad during each of these periods. By "road mileage" is meant the main line track mileage of the railroad.

At December 31, 1907, the entire line consisted of 4,726 miles, in round figures. On June 30, 1914, also at December 31, 1913, and during our test period (although the exhibit does not show that) it

was 4,746 miles, an increase of twenty miles. The increase in Arkansas during the same period was 5½ miles.

Q. Mr. Hamilton, in what way does that exhibit have a bearing on the question of normality?

A. With only a negligible increase in the road mileage, 5½ miles in Arkansas and 20 miles on the entire railroad, it is apparent
850 that so far as the extent of its territory is concerned and the location of its line, the railroad upon which we made our test in November and December, 1913, is the same railroad which was operated throughout all of the periods for which we have submitted exhibits of earnings and expenses.

Q. Have you another exhibit bearing upon that proposition?

A. Not on the road mileage.

Q. I mean on other things.

A. Yes, sir, and I would like to offer Exhibits No. 38 and No. 39.

Exhibit No. 38 shows for the St. Louis & San Francisco Railroad in the state of Arkansas the train miles, the net ton miles of revenue freight and revenue passengers one mile per mile of road per day in each of the periods that have been covered by exhibits here showing earnings and expenses.

Exhibit No. 39 shows in a graphic chart form the average haul of freight and passengers in the state of Arkansas, intrastate and interstate separately. This also covers all of the periods for which exhibits have been submitted as to earnings and expenses.

It will be noted in connection with this exhibit that instead of showing the average haul for the months of November and December, 1913, that data has been shown for the six months ended December 31, of which those two months were a part. This has
851 been done for the reason that the factors necessary to produce this average haul figure for the months of November and December, 1913, were not available. In preparing our November and December test figures we counted each ton and each passenger every time they were handled, and so we have in our total number of tons and passengers for those two months several times duplicated some of the units. In order to determine the actual average haul one must count the tons and passengers but once against the distance traveled for each unit's total journey. We did not have these single ton and passenger figures for November and December, but we did have them in our regular statistics for Arkansas kept by the auditor, for the six months ended December 31, and for that reason we have substituted them for the shorter period.

Q. Mr. Hamilton, will you explain what bearing these two exhibits have upon the question of normality?

A. Yes, sir. On that general proposition I think it should be said that nothing short of an almost miraculous coincidence would produce the same operating conditions upon any given railroad or section of railroad in any two periods, that is, exactly the same operating conditions. There must always be some difference in various periods. Such differences are shown in some of the exhibits that we have here, and, perhaps, notably in these two, but these differences must be considered, it seems to me, not in and of

themselves but in the light of their effect upon the problem that we are endeavoring to solve here.

852 We have taken the months of November and December, as has been previously explained in the record, as a test period in which to determine the excess cost per ton mile and per passenger mile of intrastate over interstate business. That is all we have used that test period for. It was intended to supplant the expert opinion, or the judgment, of railroad men, that intrastate cost so much more than interstate, as a matter of conjecture, or as a matter of experience, if you will, but we used this test period solely for that purpose, to determine the percentage of extra cost of intrastate over interstate traffic, and we have carried those percentages back through all of these other exhibits, applied them to the ton miles and passenger miles in dividing the cost in the other years all the way back to 1907.

Exhibit No. 38, the one I have just offered, shows the train miles, ton miles and passenger miles per mile of road per day in Arkansas.

If you compare the test period of November and December as shown in this exhibit with, for instance, the four months ended December 31, 1907—that is, November and December—you will note that four freight trains per mile of line per day hauled 1280 tons, net, per mile of road per day of revenue freight. That is an average of a little over 320 tons per train mile as against an average of the 230 tons per train mile in the four months ended December 31, 1907.

It will also be noted from the exhibit that operating exactly the same number of passenger trains per mile of road per day,

853 that is, four, both in November and December, 1913, and in the four months of 1907, we hauled an increase of 74 passengers per mile of road per day in November and December, 1913, as compared with the four months of 1907.

Both of these comparisons, freight and passenger, indicate in a large way a cheaper cost per unit of traffic handled in the test period in November and December than obtained in the four months of 1907. Of course, that applies to all traffic, and there the intrastate and interstate are mingled in these tons and passengers on these trains that I have referred to, and it may be suggested here that we have offered nothing which will show the same relative cost between intrastate and interstate per ton mile and per passenger mile in these two periods.

If we turn to Exhibit No. 39, the chart that shows the average length of haul, we will see it shows the average haul of one ton, the average journey of a passenger, both state and interstate, for all of these periods. It will be noted that in the last half of 1913, the calendar year which included our two months' test period, the average haul of intrastate freight was 25.75 miles, and that this same average haul of intrastate, or within 3/10 of a mile, occurred back in 1907 where the average haul was 25.44 miles—that is, the four months of 1907 that we are concerned with. But the average haul of interstate freight has dropped down in the six months of

1913, which include our test period, from 82 miles to 76
854 miles. There is a decrease of six miles. It seems to me that that indicates plainly that considering the greater train load and the resultant cheapened unit cost of all freight traffic, that the cost of all intrastate traffic per ton mile was less, as contrasted with the interstate traffic per ton mile, in the 1913 test period, than it was back in 1907. Therefore, so far as the freight traffic is concerned, the excess cost percentage of intrastate over interstate carried back from 1913 to 1907, has been too small. There is no question in my mind but that intrastate freight hauled an average of 25 miles carries a greater excess cost per ton mile over interstate freight hauled 76 miles, than does intrastate freight hauled 25 miles over interstate freight hauled 82 miles, and, as I previously stated, the intrastate haul of freight was the same in the test period as in 1907, but the interstate haul was six miles shorter in the test period than in 1907.

The burden of extra cost attaching to shorter hauls is the direct result of having a lesser mileage to spread the two terminals over. That is the point I had in mind there. Summed up, the whole function of the railroad's transportation culminates in the haul of traffic. That, to my mind, typifies more than anything else the nature of the cost of the service, and where the haul is shorter the unit cost is necessarily greater.

We have here a distorted relation: Our test period shows that if we have an excess cost of intrastate over interstate which we
855 have carried back into these other periods, if anything, it has been too small, at least as contrasted with 1907, and that is all that we have carried back from the test period, that percentage of excess cost.

As to the passenger traffic in this exhibit virtually the same conditions as to length of haul appear in the two periods as in the freight service, and the same remarks would apply as to the percentage of excess cost.

On the other hand, if you consider the intrastate traffic by itself, the fluctuation and average length of haul, which is shown plainly in the chart in the exhibit—and that stands out prominently, that the average length of haul of intrastate passenger traffic in the last half of 1913, which included our test period, is the longest of any of the periods for which figures have been submitted, and for that reason we had the cheapest cost per unit of traffic, intrastate passenger, during that period.

At this point recess was had until 1:30 P. M.

After recess on Tuesday, September 29, 1914, the following proceedings were had at 1:30 P. M.:

Direct examination of Mr. T. A. Hamilton resumed.

By Mr. Moore:

Q. Have you prepared any data to show the proportions of the total traffic of the St. Louis & San Francisco Railroad in Arkansas

which were intrastate and interstate, freight and passenger, during a period for which exhibits have been prepared in this case?

856 A. Yes, sir, I prepared such an exhibit.

Q. Will you file the exhibit and make a statement in connection with it?

A. I offer this as Exhibit No. 40. This exhibit shows that the intrastate passengers one mile were a larger proportion of the total passenger traffic in Arkansas in the months of November and December, 1913, and also in the four months ended December 31, 1907, than in any of the full fiscal years shown on the exhibit. To one familiar with conditions in Arkansas the reason for this is plain. The fall period of the year is undoubtedly the heaviest period of passenger travel in this state. This is proven by the fact that the total passenger miles, intrastate and interstate together, in Arkansas, for the four months ended December 31, 1907, amounted to 14,207,000 passenger miles. Multiplying that four months' figure by three to get the year's figure you get 42,621,000 passenger miles, whereas the actual passenger travel in Arkansas during that fiscal year was only 40,800,000 passenger miles.

Mr. Hill (to the witness): You haven't that on this Exhibit.

A. No, sir, it is stated in Exhibit No. 27, those figures for the four months. This shows that multiplying the travel in Arkansas for the four months by three you get considerably more than the total actual travel for a year, and that will seem to prove conclusively that the fall is the heaviest period of travel in this state——

Mr. Hill: Let me interrupt you a moment: I have not the
857 same exhibit; what I have before me gives a percentage of total passenger miles in Arkansas for the four months' period, 43.77%.

A. That is correct.

Q. Is that actual or is that multiplied by three?

A. No, that is the actual travel, and I was endeavoring to explain, Judge Hill, why the proportion was greater in the fall periods than it was in the entire year. I was just coming to that.

The total passenger travel in Arkansas in the two months November and December, was 9,895,000. You multiply that by six to get a year's figure, and the result is 59,300,000 passenger miles, whereas the actual passenger miles for the year in which those two months were included was but 52,400,000 miles.

It is further evident that the fall and early winter months are the heaviest period of the year for intrastate travel along the same lines as indicated there, and in fact, the chart shows it, but following the same line of thought as for the total travel it may be said that the actual intrastate passenger miles in Arkansas in the four months ended December 31, 1907, were 6,200,000 miles, in round figures. If you multiply that four months' figure by three you get a year's figure of 18,650,000. As a matter of fact, the actual Arkansas intrastate travel in that year was but 17,600,000, and relatively the same condition obtains in the two months' period of 1913,
858 when you multiply by six to get a year's figure. It yields 24,000,000 intrastate passengers in Arkansas while the actual travel for the year was less than 22,000,000.

That would seem to explain why the percentage of intrastate travel to the total travel in Arkansas was greater in these fall periods than it was for the whole year. It is probably true that the crops in Arkansas have been marketed by that time, that is, the greatest single staple crops of the state, and that the people are financially better able to travel at that time than they are at any other period of the year; at least the amount of travel would seem to indicate that.

The difference between the percentage of intrastate passenger miles to the total in the test period of November and December, and in the four months ended December 31, 1907, is only 3%, so that one would seem to be fairly reflective of the other. So far as this feature of the normality is concerned I think that is a conservative statement.

Further, the test period of November and December used to determine the extra cost percentage of intrastate passenger travel over interstate—and that is really the milk in the cocoanut—may fairly be stated to have been a period which would show the minimum extra cost of intrastate travel for the reason that the entire cost of all passenger traffic, intrastate and interstate, was but 1.56 cents per passenger mile in these two months. That figure is deducible from the figure which gives the expense and the passenger
859 miles for the test period in the exhibit.

Mr. Moore:

Q. Go on with your statement, Mr. Hamilton.

A. The cost of all passenger traffic, intrastate and interstate, in November and December, 1913, was 1.56 cents per passenger mile. In all of the other periods for which we presented exhibits the cost per passenger mile of all traffic in Arkansas was greater than it was in the test period of 1913. It was 1.95 cents in the fiscal year ended June 30, 1913; 1.86 cents in the fiscal year 1912; 1.69 cents in the fiscal year 1911; 2.06 cents in the fiscal year 1910, and 1.91 cents in the four months ended December 31, 1907.

That is the cost per passenger mile for all operating expenses in Arkansas during these periods and the factors from which those average cost figures were made can be found in the exhibits which give both the passenger assignment of expense and the passengers one mile.

The point is this: We have the lowest cost per passenger mile for all traffic in our November and December test period, and where the cost per passenger mile for all passenger traffic, intrastate and interstate combined, is the lowest, the difference in cost between the two classes of traffic must necessarily be least because the percentage of excess cost attaching to the intrastate traffic could fluctuate less when the total cost of all passenger traffic was smallest.

We discussed this morning the effect of the average length
860 of haul in the two classes of traffic and showed that the journey of the intrastate passenger was at its longest in our test period, and that was a little longer than it was in 1907, that the haul or journey of the interstate passenger was shortest in our test period, some three miles shorter than in 1907, so that again the percentage of excess cost per passenger mile of intrastate travel was

smallest in our test period or, rather, smaller in our test period than any of these other periods for which we filed exhibits, and that the percentage of excess cost for both the passenger and freight sides is all that we have carried back out of this test period to all of the other periods represented here.

As to the freight side of this exhibit, the fluctuations in proportion of intrastate to total traffic is what we have so often referred to here as "negligible", the exhibit shows that.

Q. Will you file that as Exhibit No. 40?

A. Yes, sir.

Q. Have you prepared an exhibit to show the proportions of the operating expenses of the entire road and the traffic of the entire road——

A. Yes, sir, I have such an exhibit, Exhibit No. 41.

Q. The proportion of traffic of the entire road, freight and passenger, handled within the state during each of the periods for which you have exhibits covering expenses and earnings in this state?

861 A. Yes, sir. This exhibit, which is also a graphic chart, shows that during the four months ended December 31, 1907, 11.80% of the expenses of the entire railroad were assigned to Arkansas, and that during that same period there was transported in Arkansas 11.28% of the total revenue ton miles of freight transported on the entire railroad; that during the same period the Arkansas proportion of total passenger traffic of the entire railroad was 10.25%. Those traffic figures are expressed in ton miles and passenger miles.

For the months of November and December, 1913, our test period, the chart shows that we have assigned to Arkansas 10.44% of the total operating expenses, or 1.36% less than the percentage of such assignment in the 1907 period.

At the same time it will be noted from an examination of the exhibit that the proportion which the freight traffic of Arkansas was to the freight traffic of the entire line was 1.8% less in the 1913 period than in the 1907 period, while the Arkansas proportion of the passenger traffic of the entire line was 1% more in 1913 than in the 1907 period.

The variations in these percentages are small, but it will be noted that the proportions of revenue traffic moved in Arkansas run fairly well hand in hand with the assignment of expenses to Arkansas. This, of course, covers all business, freight and passenger, intra and interstate, the object being to endeavor to show that the assignment of expenses to Arkansas has been fair, considering the proportion of traffic in Arkansas.

862 It will be noted, too, that so far as these fluctuations go, that where the proportion of freight traffic is smaller the proportion of the passenger traffic is greater, that the proportions of expense assigned to the state run about level.

Q. Have you filed that as an exhibit?

A. Yes, sir, it is Exhibit No. 41.

Q. Have you prepared a statement showing the passengers on

interstate journeys who availed themselves of the two cent revenue rate in this state?

A. Yes, sir.

Q. If you have, please file it and state what it is.

A. It is Exhibit No. 42, and contains a table and a statement of some facts that go with it, together with some explanations.

When I was on the stand here before I made the statement that interstate passengers, on our line, at least, had been availing themselves of the two cent intrastate rate to cheapen the cost of interstate journeys. I think the tables that are included in this exhibit show that conclusively, and there are also some other matters in connection with it, which the tables do not show but which are discussed somewhat in the exhibit.

The situation was this: The intrastate passenger rates in Arkansas were reduced in July, 1913, to a basis of two cents a mile. The interstate passenger rates into, out of and through the state at
863 that time were not changed, but remained on their former basis, in most cases, as I am informed, not being familiar with the passenger tariff, approximately three cents a mile.

On account of this situation the passengers traveling into, out of or through the state have been purchasing tickets to a point at or near the state line, paying a three cent interstate fare across the state line for a short journey (as short as they could possibly make it) and then paying for the balance of their interstate journey at a two cent intrastate rate.

I will illustrate that in a concrete example: Our line from Monett to Paris, Texas, runs out of Missouri at Seligman into Arkansas, across the line just a mile or two from Seligman, and runs on down through Rogers and Fort Smith and into Oklahoma.

Passengers would buy tickets from a Missouri point to Seligman at two cents a mile, that being the Missouri rate. They would pay three cents from Seligman to Osborne, the first station across the line, if they were on a local train, or would pay three cents per mile from Seligman to Rogers if they were on one of our fast or through trains which make their first stop at Rogers. If the passenger were destined to Fort Smith, he would pay two cents a mile from Rogers or Osborne, as the case may be, to Fort Smith; and he would have traveled all his Interstate journey except that little piece between Seligman and Rogers, or Seligman and Osborne at two cents a mile.
864 To determine how extensive that practice was we placed our train collectors, who have direct charge of the collection of passenger fares on these passenger trains, for a period of fifteen days in February and March of this year, and we instructed those men to record on a report blank which we furnished them, the history of each passenger's journey whom they were sure had availed themselves of this re-ticketing practice, and to omit from such reports any passengers that they did not, with moral certainty, know had re-ticketed or paid cash fares to cheapen the interstate rate. The reports of these train auditors for that fifteen day period show that during that time there were carried within the state of Arkansas passengers 176,700 miles traveling on interstate journeys, but at intra-

state rates. By reason of this re-ticketing practice, the revenue that the railroad derived from them for that portion of their journey was $3,534. Had these passengers paid the published tariff interstate rate the railroad would have gotten $5,301 from them, showing a shrinkage of $1,767 in fifteen days. That is, assuming that those fifteen days were reflective of the condition for the entire year, the loss would have been $42,997.

But it cannot be accepted that these reports of the train auditors included all of these passengers. I made some personal observation of that matter myself at Seligman and Rogers, and some passengers would get away. The auditors did get, perhaps, the major
865 portion of them, but in any event, this statement of the extent of that practice is the minimum, because they did not get track of all of the passengers; in fact, their reports indicate that.

It has been contended that the reduction of the intrastate passenger fare to two cents has so stimulated intrastate passenger travel—and by that I mean bona fide intrastate passenger travel, and not this re-ticketing practice—that the Company has been benefited by it in its gross and net earnings.

Our experience is that in this state, at least, that is not the fact. If we take our actual intrastate passenger travel for the year ended June 30, 1914, in this state, and eliminate from it such passengers as this train auditors' investigation shows have re-ticketed, and who were really interstate passengers, as stated in this exhibit, the net effect is that comparing the year ended June 30, 1914, with the preceding fiscal year, we had an increase in bona fide intrastate passenger miles of 21%, but a decrease, by reason of the reduction in rate, in intrastate passenger revenue of 14%. The passengers went up 21% and the revenue went down 14%.

Those percentages are, perhaps, startling, but they are based on fact, with this one assumption, and in that connection it is well to bear in mind that whenever states have reduced the fare from three cents to two cents they have called it a 33⅓% reduction, but when the fare goes up from two cents to three cents it is always a 50% increase.

866 Those figures are set forth in detail in the exhibit. The exhibit carries a table also which shows the increase in passenger ticket sales from what we have called "border stations," that is, the first station adjacent to the state line at which our train schedules would permit the purchase of tickets by passengers to indulge in this re-ticketing practice. As a contrast to that we have shown the increase in the number of passengers ticketed, and both of these are to other Arkansas points at interior stations where there would be no incentive to re-ticket to cheapen the cost of an interstate journey. Unfortunately, this shows only one side of the proposition. We have shown the passengers who bought tickets at these border stations, but we have not been able so far to show the passengers who bought tickets elsewhere to go to these border stations, to converse the proposition. However, it seems to me the figures in themselves are sufficiently impressive to indicate the contention that we have made.

For instance, June, 1913, was the last full month in which we

operated on a three cent fare, and August, 1913, was the first full month in which we operated on a two cent fare in this state, and in this exhibit I have contrasted August, 1913, with August, 1912, the same month of the previous year, and on a three cent basis, and June, which was the last three cent full month, and find that at Osborne, Arkansas (a border station) in August, 1913, our conductors collected cash fares to other Arkansas points covering 142 pas-
867 sengers as against 8 in August, 1912. The percentage of increase is 1675%.

At Rogers, not at the border but the first stop for through Texas trains, the increase is from 2,532 passengers in August, 1912, to 4,321, in August, 1913, or 71%, and all of those were going to other Arkansas destinations.

At Arkinda, the first station across the Oklahoma border on the Ardmore and Arkinda subdivision of our Red River Division—that is the line from Ardmore to Hope—the increase was 431%, from 176 to 935 passengers.

At Mammoth Springs, on our Memphis line, in August, 1913, 1,684 passengers bought tickets to Arkansas points at the two cent rate. In August, 1912, 656 only bought tickets there to Arkansas points at the three cent rate. There the increase is 157%.

At Summers, Arkansas, on the river division, the increase is 369%.

If we go into the interior of the state where passengers would have no incentive to re-ticket to cheapen the cost of an interstate journey we find that at Jonesboro the increase is only 33%.

At Hoxie the increase is only 33%.

At Hope the increase is only 7% and, as I stated a minute ago, at Arkinda, on the same line but closer to the border, it was 431%.

At Ashdown, on the same line, between Hope and Arkinda, the increase was 31%.

868 At Wilson, on the River Division, it was 28% as compared with an increase at Summers, on the same Division, of 369%.

At Luxora, on the same division, quite a way in the interior, a decrease of 1% is shown.

It seems to me that indicates plainly the fact that a good deal of the increase in intrastate travel in this state since the two cent fare went into effect, has been of interstate passengers who evaded the published tariff interstate rate by purchasing tickets for a portion of their journey at the state border, thereby reducing the Company's revenue which it would have obtained had they purchased through tickets.

Cross-examination.

By Mr. Hill:

Q. Mr. Hamilton, Exhibit No. 40, as I understand it, seems to be a ratio between intrastate and interstate traffic to the total Arkansas traffic.

A. That is correct, Judge Hill.

Q. On the passenger side of it, for the four months' period, it was 43.77% of the whole; for the test period it dropped to 40.55%, something over 3% less for the test period than for the four months——

A. Yes, the percentage in the test period is 3% less than in the four months of 1907.

Q. Exhibit No. 41 seems to be the relative proportion of the entire line of operating expenses assigned to Arkansas—rather, the
869 relative proportion of Arkansas as to the entire line?

A. Yes, sir, that is correct; also the traffic.

Q. In the two months' period, November and December, 1913, there was 11.14% assigned to Arkansas——

A. No, you want the top table, Judge Hill; that is, the traffic department expenses are in the top table.

Q. It was 10.44%?

A. Yes, sir.

Q. For the test period as against 11.80% for the four months' period?

A. The four months of 1907, yes, sir.

Q. How much would the difference represented by percentage amount to in dollars and cents?

A. Exhibit No. 7 shows the operating expenses of the entire line and those we have assigned to the state of Arkansas for those two months——

Q. Don't run it down exactly, just give me an approximation.

A. The difference there is 1.4%, and 1.4% of the total expenses of the entire line for those two months would have been, in round numbers, $76,000.

Q. For the four months or for the two months?

A. No, that is what the 1% difference would have meant in the test period.

Q. About $76,000?

A. Yes, there was that much less expense charged to Arkan-
870 sas in the test period than in 1907. I want to say we must consider that hand in hand with the volume of traffic which there was in Arkansas, which the exhibit also shows.

Q. You quoted in the record this morning statements of Mr. Ludlam and Mr. Wharton as to the cost basis being a better basis than the revenue basis for dividing the property.

A. Yes, sir.

Q. There are no statements there, or elsewhere in that testimony, as I remember it, that advocated the taking of the cost of one of the items of the primary accounts, like transportation, as the factor; they were referring to the cost as a whole, were they not?

A. That is my recollection, yes, sir. Of course, it was the principle that I had in mind, not the detail.

Q. They did not put in any exhibits using the cost basis for dividing property, did they?

A. No, sir; I think that reference we read this morning is the only reference in the testimony.

Q. That is all I am familiar with in which they stated the cost basis was better than the revenue; that was the——

A. Yes, what was read in the record this morning will show.

Mr. Hill: Some of these exhibits I have now for the first time, and

some I have had for about two weeks. I will not attempt to ask Mr. Hamilton about these at this time; I may want to question him later about them. That is all this time.

871 Mr. Moore: If the Court please, this is all the testimony that we have here and we are ready to rest our case with this exception——

Mr. Hill: What is that?

Mr. Moore: I say this is all the testimony we have here now that we wish to introduce, and we rest our case with this exception:

There is one witness, not connected with the Railroad Company, that we want to get on the subject of the distribution of expenses of car repairs between line and terminal, but we are not able to get him here now. He is not within our control. We want to introduce just one witness on that subject, but we cannot do it now because we cannot get him here.

Then you will remember when Mr. Jonah was on the witness stand in the summer time he testified in regard to the value of the property. Mr. Jonah is having made some estimates of depreciation for the purpose of showing what the reproduction value of the property is, but they are not yet completed, nor are the exhibits completed. I think there are some that are in a state of completion, but we will want to give him the opportunity to complete them all before we give that reproduction value. They are simply exhibits showing estimates of appreciation and depreciation upon the cost value of the property.

With that exception, as far as I know, we are through and rest.

872 Mr. Hill: If the Court please, as to this testimony of Mr. Jonah I want to call attention to this: Mr. Moore closed with Mr. Jonah. I cross-examined him only very briefly to get some information about the way in which his data was compiled, and reserved the right to cross-examine him after I had the engineers go over his work. That was the status in regard to Mr. Jonah.

Mr. Hamilton notified me some few weeks ago that they intended to put in exhibits on the basis of reproduction new less depreciation. I at once wrote a letter to Mr. Moore protesting, for this reason, and I want to state it to the Court:

When they closed their case on these exhibits as their valuation, we employed engineers; we have had them at work going over Mr. Jonah's estimates and making a careful check of the exhibits he has made and introduced as their case here. Now, if a new basis of reproduction new, less depreciation, is to be introduced into this case, it means the opening up of the case again on a new basis, which will require new investigation and new inquiry all along the line, requiring interminable time and expense. I do not think it is fair to the state, for they closed their case upon the exhibits as made.

The Court: I do not understand they closed their case; in fact, I don't understand that they close the case now.

873 Mr. Hill: Mr. Moore closed last summer, with the exception of these normality exhibits which Mr. Hamilton was to make, and as to Mr. Berry on the starting and stopping proposition. (To Mr. Moore:) Is not that correct?

Mr. Moore: No, that is not correct.

Mr. Hill: That is as I understood it, that Mr. Hamilton would get up the normality exhibits——

Mr. Moore: I don't now remember making any reference to normality exhibits. The Court asked Mr. Hamilton to get those up.

Mr. Hill: That was thoroughly understood, that he was to get up the normality exhibits.

Mr. Moore: I expressly and distinctly stated that I might have further testimony to introduce, or something to that effect. I did not close definitely at that time and I did it purposely so that if anything should arise I might be able to get it in.

I want to state in regard to this depreciation that we have introduced here the first cost of this property. At that time Mr. Jonah did not have the figures and was not prepared to show the appreciation and depreciation of the property and the effect of it. It is an entirely different matter from the first cost; of course, it goes with it, but I think it is necessary to get at the present value. At that time I did not know what Mr. Jonah would be able to do about what I had in mind, and that is one reason I left the matter in that condition.

I intended to leave it in that condition so that if we could get
874 these figures I could introduce them, because I realized when Mr. Jonah was on the stand that we ought to show the effect of the wear and tear and general depreciation of the property.

I understand that quite a number of those exhibits will be ready in a day or two and are practically ready now to be turned over to Judge Hill; the others will be turned over as soon as they are prepared.

Judge Hill can speak for himself—I don't know, but I have understood that he is having some estimates made along that line. Is that correct, Judge Hill?

Judge Hill: Certainly.

Mr. Moore: I understood Judge Hill was having estimates made upon that matter of depreciation, and it just resolves itself into this—if he goes into that and I do not do it in advance, I will have a right to go into it on rebuttal. I think it is fair, right and proper that if I can I should get my testimony in in advance, but certainly I would have a right to go into it in rebuttal if Judge Hill goes into it, and I understand he is having an investigation made for that purpose.

I have no disposition to delay this case and I want to suggest this: This item I speak of—the distribution of car repairs—is a very small matter and may or may not make a change in the condition of the record. I don't know what it will do because I have not seen the witness, but the witness I want to get is a man of vast and varied experience in that line and I think his testimony should be
875 taken in this case. It will be instructive in the case, but it will not be lengthy.

But this depreciation is a matter that stands out by itself. It is not connected, necessarily, with anything that preceded, except it may have a bearing on the cost values that have been introduced here.

What I have in mind is this: There is nothing to prevent Judge

Hill from going on now. I take it that Mr. Oliver, who has prepared some exhibits and served them upon us, will be his witness. He is here and there is no reason why we cannot go on now, and I am ready to do it. All I want is time, if it should be necessary for me to go into that in rebuttal, in order to make preparation. I think the most expedient way for us to do now is for Judge Hill to go on with his figures and exhibits and present his case. That feature of the case will not be affected by either of the two matters I call attention to now, that is to say, the distribution of car repairs and the depreciation of equipment and line property. I believe in that way we can go right along without any material delay except what may be necessary to bring in those estimates.

I understand another thing, that Judge Hill himself, so far as the value and depreciation is concerned, is not prepared; I understand that his agents are in about the same condition that ours are, that they are not prepared to go into that matter of depreciation of the value of the property.

876 I would greatly prefer to go on with the case except as to those two matters, and all I ask is time enough to get those two matters in shape. I think it is a matter that can be treated entirely separate from the bulk of this testimony.

Judge Hill: Is your engineering evidence entirely confined to depreciation?

Mr. Moore: And those things incident to it.

The Court: I suppose appreciation as much as depreciation.

Judge Hill: Mr. Hamilton's letter to me stated that exhibits would be prepared on a basis of reproduction new of the property. Am I correct, Mr. Hamilton?

Mr. Hamilton: That is correct.

Mr. Hill: Less depreciation. That is what I am objecting to, because that brings in a new basis entirely, and a new investigation of all this roadbed and the data. The engineers have gone to the books and have been checking it up. Now, if they go into the question of reproduction new of the property, it would be necessary to find out the cost at which you could go into the market and buy this identical property for at the time. It makes a new proposition entirely, a proposition that was not introduced when they closed the case upon that phase of it, as I understood it.

I am satisfied the record will bear me out that the case was closed except as to these normality exhibits, the cross-examination of Mr. Jonah and the testimony of Mr. Berry. Otherwise, I never

877 would have employed engineers and put them to work on this matter piecemeal. If they put in exhibits on the cost reproduction new it means going over this entire work again, either by these gentlemen or someone else.

The Court: In view of Justice Hughes' opinion, it would be safer for them to prove in every possible way—but it may be that Justice Day may write the opinion in connection with Chief Justice White, but if Justice Hughes writes it——

Judge Hill: That is not the question at all; the question is, they

put in their exhibits on this valuation on that basis and closed their case upon that point, and upon the strength of that——

Mr. Moore: I claim I have not closed my case on that.

Mr. Hill: You reserved the right to put in the normality figures and I reserved the right to put in Mr. Jonah's testimony when I had the engineers' data. You may not have intended to close, but that is what you did.

Mr. Moore: I intended to leave the matter just the other way; I intended to leave the matter so it would not be closed.

Mr. Hill: You understood and I understood that I was to employ the engineers, and Mr. Jonah has given them the data that he filed here, and now two weeks before this hearing you come in and notify us that an entire new basis has been used, after our engineers have been at work for two months. That is not fair. That is our position.

878 The Court: Under the new equity rules they may even change their entire method of trying the case. They have brought in one method of ascertaining what the actual value is. They don't know, and no one can tell——

Mr. Hill: Why didn't they bring in the other method before?

The Court: Maybe after due consideration they may determine they can have both methods.

There is an immense amount of labor on both sides. There are many things to be taken into consideration.

(Here ensued colloquy on the subject of a date on which to continue the taking of evidence.)

Mr. Hill (to Mr. Moore): Are you going to make a reproduction new exhibit of equipment as well as the balance of the road?

Mr. Moore: We are going to show depreciation of it, but that is what it comes to in the end, I suppose. We propose to show appreciation and depreciation.

Mr. Hill: Depreciation of equipment?

Mr. Moore: Yes, Judge Hill, we want to go into the depreciation.

Mr. Hill: It does not seem to be a good idea to take this up piecemeal.

Mr. Moore: That is wholly separate and distinct from that part of the case we have gone over before. We are practically through with the bulk of these figures relating to the division of expense

879 and earnings. There is only one thing, and that is not anything that amounts to much, namely, the witness I told you about as to the separation of car repairs. We are practically through with that branch of the case and it is in a condition so we can go ahead. I would like if you would go ahead this week as far as you can. You have furnished us with exhibits. Mr. Oliver, who made the exhibits, is here and I suppose he is to go on the stand and state what they are and what their effect is.

Mr. Hill: I think I can go ahead with part of my testimony in the morning.

The Court: Very well, then, at 9:30 o'clock.

At this point adjournment was had to Wednesday, September 30, 1914, at 9:30 o'clock in the forenoon.

By consent of the parties a further adjournment was taken to October 15, 1914, then to be resumed at St. Louis, Missouri.

880 LITTLE ROCK, October 28, 1914.

By consent of the parties an adjournment was taken on October 15, 1914, to Wednesday, October 28, 1914, at Little Rock, Arkansas, when the following proceedings were had:

WILSON E. SYMONS, a witness of lawful age, being duly produced, sworn and examined, testified on behalf of the complainant, as follows:

Direct examination.

By Mr. Moore:

Q. State your name, age and residence.

A. Wilson E. Symons; age, fifty-three years; I reside in Chicago, Illinois.

Q. What is your profession or occupation?

A. I am engaged in the work of Consulting Engineer, on expert or special work, for railways principally, although the scope of my work sometimes takes in studies of and reports on industrial concerns of an engineering and financial character.

Q. You keep an office in Chicago?

A. Yes, sir, I have an office in Chicago, Room 900 Postal Telegraph Building.

Q. Mr. Symons, I wish you would state what your experience has been, when you began work in connection with your profession, and what your experience has been in all branches of railroad work with which you have been connected: How long your experience has continued and of what it has consisted.

881 A. I have had quite a wide and varied experience in railroad work, consisting of the elementary branches, such as machinist's apprentice, locomotive fireman, engineer, and conductor; general foreman, division master mechanic, and superintendent of motive power and machinery, on four different railways; which experience has been supplemented by some six or seven years of consulting work, during which time I have had occasion to not only analyze mechanical department methods and conditions but also operating and transportation features as well.

I have made an examination of and report upon departments of railways, and in conjunction with my former office partner, covering a complete railway, to which I usually had assigned for my portion of the work all mechanical department and much of the operating department matters.

Q. Who was your partner of whom you speak?

A. The late Horace G. Burt, ex-president of the Union Pacific Railway. I had an office arrangement and partnership with him

for about seven years, until his death a little over a year ago, and I still retain the same office we had.

Q. Have you had occasion to make any special studies of the contributing causes of injuries to engines and cars in operation?

A. I have.

Q. Please state now what experience you have had in that respect and what observations you have made.

882 A. I was called upon a short time ago to make an investigation and reach a conclusion with respect to the contributing causes making necessary repairs to railway equipment, including locomotives, passenger and freight cars. I proceeded upon that work and have covered it pretty thoroughly.

My study embraced primarily securing information from the railways interested with respect to the actual expense of repairing a certain number of freight and passenger cars. I took those items of expense of repairing individual cars and subdivided or allocated them, assigning a portion to line and to terminal, having previously subdivided the car or engine into eight items with the locomotive and twelve or thirteen items with the car, which items correspond to the essential parts or elements representing the physical anatomy of the unit in question.

The expense of repairing each of these items was then subdivided or allocated as between line or terminal on a percentage basis, in the cars using the actual cost of repairs, as shown by the owning companies; with the locomotives, however, the actual cost of repairs not being available, I took the average cost of all locomotives in the United States for the year, as shown by the Government reports, subdivided the expenses between line and terminal in the same manner as the cars; and then, as a test of the accuracy of the subdivision, I had the benefit of and used a series of time studies

883 which had been made by the line at interest, showing the actual time locomotives are in service, hauling trains, the actual time at stations doing work, and the time waiting for trains and for other delays.

A check or comparison of the conclusions reached was practically the same, so that the use of the time studies in connection with my subdivisions confirmed the percentages I had arrived at as being correct.

Q. For what railroad companies were these investigations you have just detailed made?

A. The Santa Fe, the Rock Island, the Frisco, the Katy, and the Kansas City Southern.

Q. Was that in connection with the litigation that is pending, to which these companies are parties, in regard to the reasonableness of rates?

A. Yes, sir.

Q. And did you go to each line and look for the conditions you have referred to in your statement just made?

A. I did. I have been over them quite recently. In fact, I went over the Kansas City Southern only a week ago.

Q. Did you, prior to that, have any experience in investigating

the contributing causes as to the expense involved in engine repairs and equipment repairs? Did you make any investigation, for instance, on the Southern Pacific Railroad?

A. Yes, sir.

884 Q. I wish you would state what your experience there was?

A. In 1905, I think it was, the late Mr. Harriman became dissatisfied with the refrigerator service rendered by the private car line companies, and built something over 6,000 refrigerator cars. During the first two years they were in service there was a great deal of trouble on account of them becoming derailed, frequently blocking the line, in California, particularly in the tunnels where it was impossible, from a physical standpoint, to detour around them. The officials of the company failing to locate the cause, they employed outside talent and selected myself to make an investigation and report upon the causes of these derailments, and also to suggest a remedy for their prevention.

I went to California and made the investigation, in conjunction with a representative of the maintenance of way department. My plan was as follows:

I selected a refrigerator car, representative of the type, loaded it with railway ties, putting in a sufficient number that the load corresponded to the ordinary average load of citrus or deciduous fruits for which the cars were used. I then placed in the iceboxes of these refrigerator cars an amount of sand in bags which was equivalent in weight to the ordinary icing of the cars, which gave me a duplicate of a car in actual service.

885 I then arranged an adjustable centerplate between the male and female castings, providing a point where I could take impressions of the force of the blows resulting from the rolling movement of the cars, or the lateral thrusts against the rails while in motion in a train.

In order to observe these conditions I built a basket or box underneath the car, extending underneath, and took my position there as an observer or inspector and rode there many miles underneath the car while in motion. At the same time I had a man on top to locate or check the distance which the car would roll from a central line.

In taking these readings I interposed pieces of soft metal, copper or hard babbitt. When the car would roll it would strike what is called a "hammer blow," which was arrested by the soft metal. At the moment of this blow I had dropped on the track a small red block with a number on it. After going over about ten miles of track we would stop, I would come out from under the car, and if it had been through a tunnel we would take a lantern, go back over the track, pick up the blocks that had been dropped and at the same time note the condition of the track where the car had rolled and struck the rails so violently with a lateral thrust. In this way we had a record of the track conditions, which in combination with the speed caused the car to roll and by the indentations or bruises on the metal we had the effect of the cars rolling; this was reduced to pounds by taking the pieces of metal to a testing

laboratory and subjecting them to a pressure sufficient to cause a similar indentation on the uninjured portion of the test pieces.

886 Q. You are now referring to the Babbitt or soft metal you used?

A. Yes, sir. The lateral blows so shown, or the force with which the wheel flanges struck the rail would run from twenty-eight thousand to thirty-eight thousand pounds while the behavior of the car was at times of such a character that in rolling it would actually lift the wheels as much as two inches above the rail; and at other times, on what is called reverse curves, wherein the trucks at one end of the car would be entering the lead to one curve and the rear trucks coming out of another curve, and the car body owing to its rigidity would be resting on the diagonally opposite side bearings, being lifted entirely clear of the center plates.

These investigations gave me an insight as to the behavior of cars on tracks when in motion that I had not had before and which could not be secured in any other manner. The investigation was very extensive and thorough and, as a result of our conclusions and my recommendation with reference to a change in design, some three or four thousand cars that were built following that had incorporated in their design the changes which I recommended, and which prevented derailments of the character with which they had been troubled before. The improvement of the tracks contributing somewhat, of course, to this improved condition.

887 Q. Did that experience give you an opportunity to make a study of the contributing causes of injuries to cars?

A. It very largely amplified the studies I had been making for years with reference to contributing causes, making repairs necessary, and opened a new field of thought and study and investigation to me which I had not before entered; and served to make many things clear to me that had previously been somewhat clouded; and which I think would appear in the same manner to others who had not had similar opportunity to study the actual physical behavior of a car on a track when running.

Q. Are you familiar with the formula used in the apportionment of revenue and operating expenses, used in this case and filed as Exhibit No. 1?

A. In a general way, I am, and I have studied such portions of it as come within the scope of my work.

Q. Have you examined the method used there in apportioning expenses between line and terminal service?

A. Yes, sir, I have.

Q. Under that formula, as I understand it, passenger line service consists of the making up and breaking up of trains in yards, service stops on lines, and straight road running. Passenger terminal service consists of the stopping and starting of trains for the purpose of loading and unloading passengers, mail, express and baggage.

888 Freight line service consists of the making up and breaking up of trains in yards; service stops on line; and straight road running. Freight terminal service consists of industrial

switching by yard engines, handling cars for loading and unloading by yard engines, all station work by yard engines and by road engines at way stations, and hauling cars to and from connecting foreign lines:

Now, have you made a study of the apportionment of engine and car repair expenses for freight and passenger cars, as between line and terminal service, as divided under that formula?

A. Yes, sir, I have. Under the definition that you have just read and as I interpret and understand this formula.

Q. I wish you would take up first the freight cars and state the result of your study and investigation as to the proper manner of dividing expense of freight car repairs as between line and terminal service.

A. In the first place, I have been strongly of the opinion for many years that about eighty per cent of the expense of repairing freight cars was due to rough treatment and about twenty per cent due to the use of the car under normal conditions of train movement.

In taking up this study I secured from the lines at interest statements showing the actual cost of repairs to a number of freight cars. I then took from those representative cars which, in my opinion, would about represent the present complexion of the equipment, having regard to material used in their construction, which
889 includes wooden frame box cars, steel underframe box cars, wooden underframe coal cars, steel underframe coal cars and wooden flat cars. So that the figures used would be fairly representative of the equipment now in use and that has been used for some years.

I then subdivided the expense items under twelve headings, which represent, in a general way, the physical anatomy of a freight car,—the twelfth, however, being miscellaneous.

I then allocated or subdivided each expense item as between line and terminal, basing this division on my judgment as the result of practical experience of some twenty odd years, in the designing, construction, purchase and maintenance of equipment, and with particular reference to my more recent studies while working in the capacity of a neutral expert, in all of which cases I have been entirely free to ascertain and cast up the facts as found, not being influenced in any manner by the policy of any of the companies at interest.

In taking these cars, I took a total of twenty-eight, using that number, and I secured as a result of this allocation between line and terminal an average of 75.7% to terminal and 24.3% to line; having in mind, however, that certain damage is done to cars in line work, which I have estimated to be about 10% of the cost of repairing cars—that is, about 10% of the cost of repairs is the result of rough treatment in line work, which consists of making up and
890 breaking up trains; so it was proper to deduct that amount from the 75.7%, which I did, adding it to the line expense, giving me a final figure of 35% line and 65% terminal.

I used ascertainable facts so far as I could, so far as they were ascertainable.

Q. One moment, Mr. Symons: You refer to the sheet here which

is described as "Summary of division of freight car repairs as between line and terminal?"

A. Yes, sir.

Q. That shows the result on different lines of road mentioned in the heading of that sheet?

A. Yes, sir.

Q. Will you file that as Exhibit No. 43 to your testimony?

A. Yes, sir.

Q. These percentages of 24.3 and 75.7, which you mentioned a while ago, are the result of the average figures that are found on that sheet, the average result of the twenty-eight cars you tested?

A. Yes, sir.

Q. And those figures are changed from 24.3% of expense attributable to line, in your final conclusion, to 35%?

A. Yes, sir.

Q. That addition to line expense, I understand you make, on account of the damage from rough handling in line service?

A. Yes, sir.

Q. What is that rough handling? That is what I want you to state.

891 A. I think it would be proper for me to state that this division of 24.3% and 75.7% is the result of my analysis of these cars, showing the percentage of expense due to ordinary use and that chargeable to rough handling or abuse. But having in mind, as previously stated, that some of the rough handling or abuse of cars was occasioned under line treatment, such as the making up and breaking up of trains, it is proper to remove that portion of it and charge it to the line. As I knew of no way to separate that prior to the analysis, I made my analysis complete and then deducted what in my judgment was a fair and reasonable amount, i. e. 10%.

Now, answering your question direct, as to the rough treatment or abuse as distinguished from ordinary normal use: It consists principally of rough switching of cars, "cutting" them off, as it is termed in station work, at a considerable rate of speed so they are thrown down against other standing cars, causing each time an impact or concussion similar to that of a collision, only on a somewhat smaller scale. Frequently the draft gear and other essential parts of the car are damaged more in one operation of this kind than the car would suffer if hauled in ordinary train service for months or for perhaps years. These operations are repeated so often and frequently that the combination of them results in the destruction of many of the most essential parts of the car and those most expensive to repair.

892 This rough treatment, almost all of it, is in what we call terminal work. Some of it is on hump yards; a great deal of it is where we have individual switch engines doing field work, where the cars are "kicked" in, as the switchmen term it, at high rates of speed, and not ridden down by brakemen to prevent them striking; and, as a result of their coming together, the car is damaged, not only the body of the car but the truck.

Q. Is damage more apt to occur at terminal points than on the line?

A. The work at terminals, in yards, is more destructive to cars

than the line work; for the reason that switch engines doing yard work do not use the air brakes to descelerate the speed of cars. They are pulled out over what is called a lead, and then cut off on return in such numbers as may be desired to make the proper classification and thrown into various tracks. And very seldom are they ridden down by the field men.

While in line work, particularly in trains, most of the switching is done with the air coupled up, because it is done with a completed unit or train going over the road, and by using the air in switching there is less destruction of cars.

Q. The impact is not so sudden, I suppose.

A. No, sir, and impacts are much lighter.

There are reasons for that. When a train is coupled up and given a number there is a degree of responsibility put on the engine crew and train crew in moving those cars over the road, which is
893 exercised by the officials under whom they work, that will result in locating any damage to any car, and they are called to account for that. While in yard work that condition does not obtain.

Therefore, switchmen working in the yards, for the same railroad, either from force of habit or due to the conditions under which they work, or from various causes, do not exercise that degree of caution in handling cars that train men do on the road.

In following this study of damage to cars, I secured about one hundred photographs from a gentleman in Chicago who had taken about three or four hundred with a view of showing the effect of rough treatment to cars. Many of them were used in one of our leading railroad publications. I selected about one hundred of these photographs, which were representative of the different character of injuries that cars sustain under rough treatment. I have those photographs here. As one hundred of them would probably be too voluminous to introduce in the record I have selected some fifteen or twenty which I think are fairly representative of the result of damage to freight equipment by rough handling. The others are here and anyone who desires to see them may do so and I will be very glad to make any explanation with reference to any of them. They were not any of them taken for use in this or any other similar case, but purely as an educational feature for the purpose of bringing before the railroad managements of the country the fact that their freight cars were being destroyed by rough terminal treatment rather than by
894 being worn out in the use for which they were intended.

Q. These photographs represent injuries resulting from rough switching and collisions, as I understand?

A. Yes, there might be some of them from collisions on the line; I am unable to say. I didn't take the photographs. But most of them are from rough handling in the yards.

Q. I meant to say the result of impacts like a collision.

A. It results from that.

Q. That is the practical result of those injuries as shown by those photographs?

A. Yes, sir.

Q. I will ask you to make that lot of photographs an exhibit and file it as Exhibit No. 45 to your testimony?

A. Very well, sir.

Q. You spoke a while ago of making an analysis of injuries to freight cars: Have you that?

A. Yes, sir, I have. There is attached to it a sample showing the distribution to the individual car.

Q. Will you file that as Exhibit No. 44 to your testimony?

A. Yes, sir.

Q. I wish you would take up that analysis and explain it somewhat in detail.

A. With the summary of divisions of freight car repairs as between line and terminal which covers twenty-eight cars, there
895 is attached a sample, or a sheet showing the manner in which the division was made.

I first subdivided the essential parts of the car into eleven items, representing the physical anatomy or parts requiring repairs. I then took the amount of money spent on each item and divided that between line and terminal on a basis which, in my judgment, represented the amount of repairs occasioned by the ordinary, normal use, and the amount occasioned by rough treatment or abuse.

The first item, wheels, I subdivided on the basis of 60% to line and 40% to terminal.

The second item, axles, brasses and boxes, I divided 60% to line and 40% to terminal.

The third item, springs, I divided equally, 50 and 50.

The fourth item, truck frames and fittings, I divided 30% to line and 70% to terminal.

The fifth item, bolsters, I divided 30% to line and 70% to terminal.

Q. Those last two items, truck frames and fittings and bolsters, I see you have attributed a very much larger proportion of the expense of those items to terminal than to the items which preceded: Why is that difference, Mr. Symons?

A. The reason for that is because the truck frames and fittings are damaged much more in terminal or switching work than
896 the axles and boxes. As a matter of fact, much of the damage to truck frames and fittings is caused by axles and wheels receiving the force of the impact or blows resulting from rough switching, when no brakes are being used. The axles and wheels being the heavier parts have in them all the stored up energy due to their weight and velocity, and when the cars come together on the draft line, which is the car body, the trucks which weigh ten to fifteen thousand pounds must be arrested through the medium of the oil boxes, truck frames and fittings, and they are, therefore, damaged by those parts.

Q. And are damaged by those parts?

A. Yes, sir.

Q. I notice below you put terminal expense at 70 and 80 per cent: This applies to all those high percentages for terminal expense, draft gears and drawbars, sills and so on?

A. It would vary a little in different cars, as between a steel car and a wooden car.

Shall I proceed with the items?

Q. Yes.

A. The sixth item, brakes, 40% to line and 60% to terminal.

The seventh item, draft gears and drawbars, I have placed at 20% to line and 80% to terminal.

The eighth item, sills, 20% to line and 80% to terminal.

The ninth item, car body, 20% to line and 80% to terminal.

897 The tenth item, the roof, 30% to line and 70% to terminal.

The reason for that difference is because the roof is a little further removed from the exact location of the shock and being usually of a flexible character can withstand some of the impacts or blows with less damage than the lower part- of the car, that are fastened together and must, therefore, either yield or break.

The eleventh item, painting, I have divided 50% to line and 50% to terminal.

The twelfth item, miscellaneous, which might include most anything not belonging under the other subdivisions, I have divided half and half, or fifty to line and 50% to terminal.

This gives the result on this particular car of 24.7% line and 75.3% terminal—terminal meaning in this case the rough treatment or damage, and the other meaning the ordinary road running.

Q. Will you take those photographs in Exhibit No. 45 and point out the various causes of the injuries shown there? Are they marked, Mr. Symons?

A. No, sir, they are not, Judge Moore, but the leaves that they are on are numbered.

Q. All right, anyway so that you can designate them.

Mr. Hill: He can designate it by saying the top or bottom of page so and so.

898 Mr. Moore:

Q. You say the pages are numbered?

A. Yes, sir. I understand they do not come in order, because these were taken out of the main book they were put in. Shall I proceed?

Q. Yes, go ahead in your own way.

A. The first photograph on page 2 shows the end of a steel underframe box car. The damage resulting from rough treatment or the impacts and blows from repeated collisions and rough switching has almost destroyed the end sill, which, in this case, is made of steel plate. The horn of the coupler has been driven in through this heavy plate until it has torn a large ugly hole. Undoubtedly the draft gear is in bad condition as it is shown to be out of place, and the lower portions of the sill are torn out.

The second photograph shows an end view of a steel gondola, the end sill having suffered serious injury from repeated shocks or impacts resulting from rough switching.

The third picture on page 2 is an end view of a hopper gondola, the end sill having suffered serious damage from repeated shocks and collisions resulting from rough handling.

The fourth view on page 2 shows the underside of a wooden box car with a steel underframe, in which the draft members, commonly called draft timbers in a wooden car, have been entirely torn loose from the main structure and from the body bolster by repeated shocks and blows.

899 On page 5 is an end view of a wooden gondola car in which the draft timbers have been torn loose from the main sills or car body by repeated shocks and blows, only being partially supported at one end by the coupler connection and the carrying iron bolts.

Photograph No. 2 on page 5 is similar to No. 1. It is a wooden gondola in which the draft gear has been literally torn from the car body by buffing shocks.

Picture No. 1 on page 11 is an end view of a wooden box car which is badly mutilated; the draft gear is missing, having been torn out by rough treatment.

Picture No. 2 on the same page is practically a duplicate of No. 1, although a different car member.

On page No. 12 the first photograph is an end view of a steel gondola car in which the draft gear has not only been entirely torn off, but the end sill is badly damaged, having been mutilated as the result of rough treatment, and will, of course, have to be removed.

Picture No. 2 on page 12 is an end view of a wooden gondola car in which the draft gear has not only been torn out, but it has taken with it a large portion of the end of the car including the center and one intermediate sill from the bolsters out to the end of the car.

Page No. 14 shows a number of bolsters and draft timbers removed from cars as the result of rough treatment.

900 On page 16 are pictures of car trucks damaged in switching, which damage almost invariably results from yard switching where cars are thrown together with great force and brakes are not used to decelerate their rate of speed. In all such cases, when the cars come together on the draft or floor line the speed of the trucks, including the stored up energy in them must be arrested through the medium of the center plates, truck bolsters, column castings and column bolts, and, as these trucks weigh from ten to fifteen thousand pounds, it results in breaking the column castings and bending the bolts after a few repeated shocks. The damage is permanent and the expense is quite heavy.

On page 21, photograph No. 1 shows the picture of two flat cars broken in two in the center as the result of rough switching at a terminal yard. Between these two cars is a steel frame flat car which did not suffer a like fate on account of its additional strength. The cars broken in two are wooden cars.

Photograph No. 2 on page 21 shows the end view of a double hopper steel gondola badly damaged as the result of impact or blow, either in the yard or on the line of road.

On page 25 the first photograph shows a picture of cars which

have been damaged in rough handling, evidently while under a load, to such an extent that they cannot be used, and are loaded in other cars to be taken to the shops for repairs.

The second photograph is a double hopper steel gondola
901 badly damaged as the result of impact or collision.

On page 26 are two photographs of steel gondolas badly damaged as the result of rough treatment either in switching or by accident.

Page 37 shows the picture of flat cars destroyed by rough treatment, loaded on other cars in one case for movement to shops and in the other case awaiting disposition.

Page 39 shows the effects of rough switching or rough treatment in the shift of loads of loaded cars. In one instance it is a flat car and in the other what is called a wooden gondola, each of them being loaded with undressed timber. The adhesive qualities or character of undressed timber is the greatest of any commodity shipped, and it is hardest to disturb or move; therefore, the movement of undressed timber on a car or in a car is conclusive proof of it having received a very severe shock or collision.

On the reverse side of page 39 are two pictures, one of a steel underframe box car in which the entire end has been torn out—in what manner I do not know, but the indications point to the load having shifted and taken the end out, or that it was struck from the outside, but in either case it was rough treatment.

The second picture is of a wooden gondola in which the load has, as the result of rough switching and handling, been shifted so that it extends out to and almost comes in contact with the next car to which it is coupled.

902 Page 42 contains a photograph showing cars with damaged roofs, much of the damage coming from rough treatment as the result of switching at terminals.

On the reverse side of page 42 is a picture of the interior of a car on which the roof has suffered from rough treatment, it having been temporarily patched up. The lower or last picture shows very clearly the result of rough handling of cars in switching, this being a wooden box car in which, as a result of a severe blow, the roof in its entirety has shifted apparently about six feet, extending over the end of the car.

Q. These photographs that you have just been explaining illustrate the injury resulting from what you term "rough usage" in switching?

A. Yes, sir.

Q. And which you say occurs to a large extent in terminal and not in line service?

A. Yes, sir.

Q. It is on account of that characteristic of the two branches of service that you attribute a larger proportion of these repairs to terminal than you do to line service?

A. Yes, sir.

Q. Mr. Symons, in the summary of Exhibit No. 43 the average result of the twenty-eight cars shows a division by which 24.3% of

the cost of repair was charged to line, and 75.7% was charged to terminal. You stated that for the purpose of charging the
903 line service with what you consider the proper proportion of the results from switching you made an addition to the line which changes it from 24.3% to 35%, and reduces the terminal expense from 75.7% to 65%: I want to see if I understand clearly how you arrived at that. As I understand this terminal or station work repairs you take about 14%—in round numbers—out of that and add it to the line charges for the purpose of representing the injury caused in line service from rough handling: Am I correct in that? If I am not correct please state how that change was produced.

A. Yes, sir. To be more explicit or, to state it in my own language, I assume—and I think I am practically correct in that—that about 10% of the total cost of repairing cars is due to rough treatment in making up and breaking up trains, chargeable to line. That would be 10% on the whole amount, or 100%, which is equivalent to about 14% on the 75.7% which I get as the result of my analysis of these cars, which gives me a net result—I take that 10% from the whole, or about 14% from the 75.7%, added to 24.3%, which gives me 35%, for line and reduces terminal to 65%.

Q. This summary represents four lines of road?

A. Yes, sir.

Q. For each Company this item of car repair expense represents what is expended by each of these railroad companies in the repair of its own cars, not in the repair of cars of other companies, but in the repair of its own home equipment?

904 A. Yes, sir.

Q. But at the same time this equipment is used interchangeably on a great many railroads, is it not?

A. The freight cars of the United States, also Canada and Mexico, practically, are pooled; they go on all roads; it is fair to assume and it is correct to assume that similar repairs were made by these companies on other Companies' cars, and that other companies made similar repairs on the cars of this company in different parts of the United States.

Q. Is there not some protection by inspection at junction points?

A. Yes, there is what is known as owner's responsibility and delivering line's responsibility.

Q. It is not true, then, that it is necessary to ascertain the car repair expense on each line of road separately? It is an item of expense growing out of common use, you might say, of freight cars on the different lines of road on which the freight cars belonging to different companies are intermingled; that is true?

A. Yes, sir; it is very accurately kept.

Q. Mr. Symons, I will ask you to take up next the expense of repairing passenger cars and state your views in regard to that in the same way that you have done with reference to the freight cars. Just one moment before you answer that:

Have you had experience in arbitrating damages growing
905 out of injuries to freight cars on different lines of railroad, which has necessitated your making an investigation into these matters you are testifying about?

A. Yes, sir. During the past six years while I have been in consulting work—the most of the time in Chicago—I have been called upon on several occasions by the Railway Underwriters to adjust fire losses on the different railways, the underwriters representing what we might call a clearing house. They represent various insurance companies. In case of a fire loss they employ what is called an adjuster, who really acts in the capacity of an arbitrator in adjusting the amounts of the loss, and in doing that I have settled losses of various amounts from eight or ten thousand dollars up to seventy-five or eighty thousand dollars with different roads, covering locomotives, passenger and freight cars, shop tools and machinery, and passenger depots.

Q. And that involved an investigation as to the effects and conditions of these cars resulting from usage, and the damage and injury growing out of usage?

A. The essential qualification in adjusting a fire loss is a knowledge of the values of all the parts of locomotives or cars, and also of the depreciation rules followed by the Master Car Builders Association, as most of the cars are insured—or, I will say, most all of the insurance policies stipulate that all losses on railway equipment is to be adjusted under the Master Car Builders Association
906 rules. Locomotives, of course, are separate from that because the Master Car Builders do not prescribe the rate of depreciation, but most of the railroads do, so it requires an intimate knowledge of the methods of the Master Car Builders Association and of the customs and practices of the different railways with reference to buildings and locomotives.

Q. Are you a member of the Master Car Builders Association and other societies of that kind?

A. I am a member of the American Society of Mechanical Engineers, the Western Society of Engineers (which is a combination of all branches of engineering), the Master Mechanics Association, the Master Car Builders Association, and the Franklin Institute of Philadelphia.

Q. Mr. Symons, will you now take up the repairs of passenger cars and state your views as to the proper distribution as to them between line and terminal service?

A. In making an analysis of the contributing causes necessitating repairs to the passenger equipment I followed the same general plan, or fundamental principles, as in the freight cars, securing from the roads in interest copies showing the itemized expenses involved in repairing various kinds of their cars which would fairly represent their equipment.

I then subdivided, or divided, the essential elements or parts of the cars under thirteen headings, twelve of which represent the physical anatomy of passenger equipment.

907 I then took the amounts expended on each item or part and subdivided that between line and terminal as, in my judgment, fairly represented the uses of the property or the contributing causes making necessary the repairs in question.

I used a total of twenty cars, which I considered representative

of a typical passenger train, with the mail and express cars eliminated, for the reason that it is taken care of on the car foot mile basis; and the Pullman car, for the reason that the railway company does not repair it. That leaves the units to be dealt with which came within the scope of my investigation.

I attached to my summary a sample sheet showing the individual distribution of one car, which is the same as was used with all the others. My divisions were as follows:

The first item, wheels and axles, 80% line and 20% terminal.

The second item, brasses and boxes, 85% to line and 15% to terminal.

The third item, springs, 85% and 15%.

The fourth item, truck frames and fittings, 70% to line and 30% to terminal.

The fifth item, bolsters, 80% to line and 20% to terminal.

The sixth item, brakes, 40% to line and 60% to terminal.

908 The seventh item, draft gears and drawbars, 35% to line and 65% to terminal.

Item eight, sills, 40% to line and 60% to terminal.

Item nine, car body, 85% to line and 15% to terminal.

Item ten, roof, 85% to line and 15% to terminal.

The next item, No. 11, painting, 80% to line and 20% to terminal.

Item twelve, seats, carpet and other coach furnishings, 80% to line and 20% to terminal.

The percentages just named with respect to the various items will vary a little on the different individual cars, as will be observed by looking at the average of the four lines at the right hand margin of the summary sheet, from which it will be noted that taking the car next to the engine, which suffers the greatest, or contributes the most service to the train movement, the percentage charged to terminal is 20.7%, the next following car, 19.3%; the next following car, 17.3%; the next following car, 16.6%; the fifth one, 15.9%, while, for the typical train I secured an average of 82½% to line service and 17½% to terminal service.

My explanation of this is that the cars next to the engine are subjected to more wear and tear than the cars on the rear of the train.

Q. Please explain why that is, Mr. Symons.

A. A typical train would probably weigh about 400 tons.

909 The car next to the engine would have to stand the necessary strain and pulling essential to moving the entire train. This would lessen in degree until the last car on the train would not be subjected to any pulling effect at all except on the draft gear at its front end and that only a sufficient amount to move the car, which, on level track, is about 7 pounds per ton of load to be moved for rolling friction.

Again, in rounding curves, even with a single engine, and more particularly so if on a gradient where two engines are required, there is an additional stress on the head car or cars in the way of lateral thrust on wheel flanges, axle collars, brasses, and, you might say, all parts of the truck structure and draft gear which has to stand, or

through which is transmitted the pulling effect of the locomotive, or locomotives, used in hauling the train.

There is another feature with reference to the exterior of the car: Baggage cars and combination cars near the head of the train are damaged by express trucks and the loading on them, the paint being scarfed and scratched, the siding is damaged. Also the cinders from the engine, the steam from it, and the gravel that is picked up by the momentum of the train is more destructive on the head car, or the first two cars, than it is on the rear cars, and, as a rule, when a train goes in the shop for an overhauling or touching up, which is usually on an average of about once per year, the paint usually has to
910 be burnt off of the head car or cars, and sometimes some of the siding renewed, while the rear car, which is not subjected to this treatment causing the damage to the paint and varnish, can be cleaned off and revarnished, thus preserving the paint and siding for another one, two or three years, as the case may be. So that the physical effect on the head car or head cars of a passenger train is much greater than on the rear cars, and consequently the amount chargeable to terminal is greater, for the reason that most all of this is caused at stations under which the expense would be a terminal charge, or most of it.

Q. What proportion of the cost of passenger car repairs do you charge to line and what proportion to terminal? I do not think that has been stated.

A. 82½% to line and 17½% to terminal. That is based on the belief that passenger cars are more evenly worn out than any other equipment, and that about 82½% is chargeable to train running or line service, and about 17½ per cent of it to terminal.

Q. Mr. Symons, you stated that the mail and express were apportioned by cost per mile: I see there is no postal car on here: Is that included in the same category as mail and express?

A. Yes, sir, a postal car is a mail car.

Q. That is true, of course.

Will you file the summary of the analysis of which you have referred to, as Exhibits No. 46 and No. 47 to your testi-
911 mony?

A. Yes, sir.

Q. Mr. Symons, I wish you would take up next the expense of locomotive repairs, taking up first the freight and then the passenger, and state in what proportion that expense would be chargeable divided between line service and terminal service.

A. In making an analysis of locomotive repairs the same fundamental principles were followed that were used in the case of the cars. The companies, however, do not all have ready for access or use the cost of repairing individual locomotives. I, therefore, took the average cost of repairing locomotives in the United States for the fiscal year of 1913, as shown by the Government records. I then assigned a proportion of that cost to locomotives on a percentage basis, this division being under eight items representing the physical anatomy of a locomotive—that is, it covers the principal parts. The

amounts then were assigned to terminal and line service on a percentage basis, corresponding to what in my judgment represented the contributing causes making necessary the repairs in question.

Taking freight engines first the eight subdivisions mentioned are divided as follows:

Item one, the boiler, 60% line and 40% terminal.

Q. That is on local freight trains?

A. Yes, sir, on local freight trains first.

Item two, running gear, 65% line, 35% terminal.

912 Item three, machinery, 55% line, 45% terminal.

Item four, brakes, 15% line, 85% terminal.

Item five is a combination of lagging, headlight, cab, and mountings, 60% line and 40% terminal.

Q. What is that "lagging?"

A. Lagging is the insulation which is placed on the outside of the boiler. It formerly was wood but now it is asbestos, and then a sheet of Russia iron covering is put outside of that to prevent radiation and loss of heat to the boiler, to protect it from the weather. Formerly it was made of Russia iron. It is now made of plain plates and painted.

Item six, tender, running gear, 70% line and 30% terminal.

Item seven, cistern and frame, 75% line, 25% terminal.

Item eight, painting engine and tender, 75% line, 25% terminal, giving an average for a local freight engine of 60% line and 40% terminal.

The through freight engine is subjected to precisely the same treatment with the exception that the percentages vary a little owing to the different character of service; the through freight engine making a less number of stops during its trip, therefore, a greater amount of the expense incident to its repairs chargeable to line and a less amount to terminal, the average being 68.4% line and 31.6% terminal.

913 Assuming that there are four or more engines performing what is termed through freight service, in comparison to one that does local or terminal work, the average would be 66.72% line and 33.28% terminal, this being so close to 66% and 34% that the figure was placed at 66% line and 34% terminal.

Having made this analysis on this basis I then supplemented this study by using the time studies of other roads, particularly the Rock Island and Santa Fe, which had made rather extensive tests covering quite a period of time for all of their trains.

Q. Did you include a time study of the Frisco also?

A. Yes, sir. I used their time studies and worked them out on a percentage basis, and, applying them to the locomotives I got practically the same results, 66% and 34%. It checked so evenly that it fully confirmed my conclusion reached through the separation of the various physical parts of the locomotives.

Mr. Hill:

Q. Let me ask a question for information: This Exhibit No. 48 that I have has 68.4% for line: I thought you said it was 66%

Mr. Moore: 66% is the combination of through and local, as I understand it. That is the explanation he just made.

Mr. Hill: I did not catch that. He hasn't that on the table.

Mr. Moore: That is outside of the table. (To the witness:)

914 That is the combination of both, as you described a moment ago?

A. Yes, sir.

Mr. Hill: The point I make is that it is not shown in this table.

Mr. Moore: No, it is not shown in this table.

Q. Will you offer that statement showing the distribution of repairs to local and through freight engines, as Exhibit No. 48 to your testimony?

A. Yes, sir.

Mr. Hill: I believe you got that mixed.

The Witness: It is just about four to one. I think it is a little more than four to one.

Mr. Hill:

Q. That was the way you got your product of 66 and 34?

A. Yes, sir.

Q. Four through to one local?

A. Yes, sir.

Mr. Hill: All right, I understand it now.

The Witness: But as the exact number of through to the local is not known on any road and varies with the character of traffic, I thought it would be fair to eliminate the fraction because it might run a little over or a little under.

Mr. Hill: I just wanted to understand it.

The Witness: I got an average of 66.72 and 33.28, and by apportioning four to one it gave me 66% and 34%.

Mr. Moore:

915 Q. With regard to this Exhibit No. 48: In addition to the difference of apportionment for each class of expense between line and terminal, on local and through, there is also a smaller difference between the two classes of trains: I wish you would take them up by items and explain them. For instance, begin with the boiler: You attribute 60% of boiler repairs on local trains to line and 40% to terminal, and so on down; and 70% and 30% on the through trains. I would like you to make some little explanation of those differences and the grounds upon which you make those distinctions.

A. The local freight engine has, in the first place, assigned to it—26% of the total repairs are chargeable to the boiler. In the through freight engine there is 28% chargeable to the boiler, and the reason of that is this: The local freight engines must necessarily be of a little lighter type in order to get into the industry tracks to do switching. They are, therefore, an older engine. The boiler, primarily, did not cost as much. It is lighter and very seldom is equipped with a superheater, or, in fact, the other expensive addi-

tions that most of the through freight engines have, and, therefore, I make a difference of 2% in the original assignment.

Q. That is as between——

A. The local freight boiler and the through freight boiler.

Q. That is what I understand.

916 A. Then when I subdivide the contributing causes of repairs as between line and terminal I give the local freight engine 60% line and 40% terminal, because it is around terminals a great deal of its time switching, therefore, 40% of the expense is chargeable to terminal. The through freight engine has only 30% because it does not make so many stops. Is that clear?

Q. Yes. There is one thing further. To illustrate what I mean take the local freight trains: Why do you charge 60% of the cost of repairs to line and 40% to terminal—I mean for boiler repairs, that happens to be the first item.

A. Well, from both measurements, as to the time in service and my knowledge of the contributing causes of repairs at least 40% would be chargeable to terminal because the local freight engine spends a great deal of its time at stations switching, and when not switching the boiler is at work, because a boiler never stops work as long as there is pressure on it. Even when waiting for a train the boiler is at work. Natural laws are operating to shorten the life of a boiler by the combustion of fuel in the fire box, and cold air coming up through the fire and flues causing them to leak, which shortens the life of the fire box and flues, as well as the shell of the boiler.

Q. And necessitates repairs?

A. Yes, to a much greater extent than a through freight engine.

917 On a road where there is a heavy volume of through traffic the through freight engine's movement will approach rather closely to that of a passenger train in that it is fired up, gotten ready for use and goes over the division to a main terminal, is detached and goes to a roundhouse, while the local freight engine stops at almost every station and is switching or waiting for further orders much of the time.

Item No. 2, the running gear: In the local freight engine I place that at 22% and I place it at the same figure for the through freight engine, but I assign 65% of that 22% to line service of the local, while I assign 75% to line service in the through freight on the same ground mentioned with respect to the other, that the machinery is worn out more at terminals and less on the line for the local engine, and more on the line than terminals with the through freight engines.

As you will observe, I have placed the brakes at 2% of the total cost of repairs, and with the local freight engine I assign 85% of that to terminal work, while with the through freight engine I assign only 75%. The reason for that is that in switching around stations the local freight engine's brakes are constantly used in its movements around to industry tracks while the brakes on the through freight engine are only used in making the necessary stops that the train makes, the engine seldom ever doing any switching.

The lagging, headlight, cab and mountings, amount to about 12%, and with a local freight engine I assign 40% of that to terminal and with the through freight engine I assign the same for
918 the reason that the cab fittings and mountings, which includes the valves in the cab, the steam gauges, and things that work automatically and are not used so much by the men as the machinery would be, are used around the roundhouse and terminal almost as much on the through freight engine as they are on the local, and there is where they are largely worn out.

For the running gear I assign 30% to terminal on the local freight engine and only 25% for the through freight engine for the reasons previously explained, that the terminal service is much harder on the local freight engine. In the case of the cistern and tender I assign 25% of the repairs of the local freight engine to terminal and only 20% to the through for the reason that it is not used in switching.

For painting, engine and tender, I assign 25% to terminal in the local freight engine and only 20% to the through, the through freight engine being a less length of time around terminals and, therefore, the painting is less damaged at the terminals.

Q. If there is nothing you wish to add as to the freight engines I wish you would take up next the passenger engines and the distribution of the contributing causes and the distribution of expenses for repairs.

A. In making an analysis of passenger locomotives the same method was employed as just described with respect to freight locomotives, the average cost of repairs to all locomotives in the United States being taken as a basis on which to distribute these ex-
919 penses as shown on the statement of distribution of repairs to engines.

The difference in the amount assigned to the various items, that is, the eight items, as between local and through passenger trains checks very closely with the differences observed with the freight engines, and for the same reason, namely, that the local passenger engine stops more frequently, if not much more frequently, in proportion to the mileage made than the local freight engine, and while it does not do any switching except in rare cases, yet the close proximity of stations on many lines results in the local passenger engine performing what might be called a stopping and starting service over the entire district, the stations on some roads being on an average of only four miles apart and in some cases a little less, so that I find the contributing causes making necessary repairs to a local passenger engine to be 36% terminal and only 64% line, while with the through passenger engine I find the terminal expense to be about 29% terminal and 71% line, and, as there is a preponderance of line engines, or engines in through train service, as compared with those in local service, I find that by averaging these on pretty much the same basis as used with reference to the freight engines, it gave me an average of 70% line and 30% terminal.

I then checked this with the supporting evidence, or with the

result of the time studies made by the different roads and
920 found that on the time basis it checked up practically 70% line and 30% terminal, the two results being so close that there was little chance to reach any other conclusion or figure.

I might say that in this percentage of line and terminal of passenger engines it will be observed that there is a differential as between the locomotives and the cars of about 12½%, the typical passenger train being 82½% while the passenger locomotive is 70%, making a difference of 12½%.

Q. You are speaking of line service now, are you?

A. Yes, sir. That is due to the fact that the engine performs more work entering and leaving terminals in proportion than any other unit in the train, in that the application of the brakes in approaching a station while uniform throughout the train is more destructive to the engine than it is to the cars, and while there are no brakes in use in leaving the station yet the severity of the service of the engine during the first mile or two while accelerating the train into speed is greater than it would be on several miles of continuous running. There should, therefore, be a differential of from ten to fifteen per cent, and in this case I found it to be 12½%.

Q. In this statement you just made you refer really to the stopping service, the station stops, in speaking of this differential?

A. Yes, sir, and starting.

Q. Which grows out of the effect of starting and stop-
921 ping at stations, and you mean station when you say terminal?

A. Yes, sir.

Mr. Hill:

Q. Were you referring to both passenger and freight in that, or just discussing the passenger alone?

A. Discussing the passenger now with the differential. There is no differential in the freight that can be measured accurately.

Mr. Moore:

Q. Mr. Symons, are you familiar with the table described by Mr. Wellington in his book on—— (To Mr. Hamilton:) What is the name of that book, Mr. Hamilton?

Mr. Hamilton: Wellington's Railway Allocation.

Mr. Hill: The Economic——

Mr. Hamilton: The Economic theory of Railroad Location.

Mr. Moore (to the witness): The Economic Theory of Railroad Allocation, for the distribution of costs and expenses of car repairs?

A. Yes, sir.

Q. I wish you would state your impressions in regard to the applicability of that formula to conditions as they exist at this time in regard to railroad equipment. Just go into the matter fully and state your views on the subject. If you wish to see the table I have it here so you can have it before you.

A. The Wellington formula was made out in 1883 or 1887.

Q. Was it not 1877? I think the first edition of the
922 book was in 1877, but excuse me, you know better than I do about that.

A. Much of the data on which Mr. Wellington predicated his formula was secured from the Atlantic & Great Western Railway, which was originally a broad gauge road running from Salamanca, New York, to either Columbus, or Dayton, Ohio.

Notwithstanding the fact that the freight cars built at that time and which he used in his formula were broad gauge, they cost only about $500. They were of about 20 to 25 ton capacity.

Q. You speak of "broad gauge:" You mean broader than the present standard gauge?

A. Yes; I think it was six feet, but I am not sure.

For years they had to use a hoist in handling the passenger equipment and lifting the car bodies off their trucks so they could run their sleeping cars and passenger cars through from New York or Buffalo to Cincinnati. Some of the old hoists are there yet; I have seen them, or evidences of them.

Wellington's formula made at that time and using equipment of that type and capacity, and also considering the conditions in effect at that time, would have no application to present day conditions at all.

As an illustration, he assigns a certain percentage of contributing causes to making up and starting out trains: It was customary
923 in early times for the engineer and fireman to get up in the morning and build a fire in their locomotive; while steam was raising they would get their breakfast; then they came back and switched out their trains, and after they had switched a long time then they took their train and proceeded over the road. There are no such conditions nowadays at all. There were very few yards in those days except the yard that was used for the train crew to use when they came in at the end of their run. Mr. Wellington's table was based upon conditions that have so completely changed, both with reference to the railway operation and with respect to the character of equipment and the manner of handling it, that it would not be applicable at all, although the fundamental principles are good and Mr. Wellington was one of the brightest and best railway men the country ever produced. His book has a foremost place in my library. I prize it highly. His tables on equipment, however, are completely out of date.

In 1907, I made an examination of a report upon the equipment and facilities for its maintenance of the Erie Railway. In making that examination it was necessary for me to personally inspect every car, or some of each series of cars owned, and among the cars still carried on the company's schedule of equipment were some of these old twenty and twenty-five ton wooden box cars, originally the property of the Atlantic & Great Western: later becoming the property of
924 the New York, Lake Erie & Western when the Erie bought the Atlantic & Great Western, and still later being merged into the Erie System.

These cars were being used for boarding or camp cars——

Q. Were those the cars Wellington made his test on?

A. They were built at that time and in that period.

Q. The same class of cars?

A. Yes, the same class of cars, and I would be safe in saying, I think, that these were the cars because they were the only cars at that time that the Atlantic & Great Western owned that were still in existence.

I recommended that they scrap all of them and write them off of the books in order to preserve the integrity of the company's capital account, which they have since done except for a few that have been lifted off the trucks and have ceased to be cars, being now used for what is termed switch shanties or for boarding purposes.

They were a good car in their day, but there is no such equipment used now, and a distribution of contributing causes of repairs to equipment based upon cars or locomotives of that kind and upon conditions of that period is not a good rule to attempt to use now.

Another very important feature was that in that time all cars had what was called a link and pin coupler, making it necessary for the brakeman or conductor to go between the cars to where he
925 made the coupling, and they were handled very carefully compared to what they are now. Since the automatic coupler has come into use and it is not necessary for the train men to go between the cars, the destructive effect of switching has gone up enormously. It did not obtain in those days. If it had the cars would not have been alive for me to have seen them in 1907.

Q. Will you file that passenger locomotive statement as Exhibit No. 49?

A. Yes, sir.

At this point recess was had until 2:30 P. M.

926 After recess on Wednesday, October 28, 1914, the following proceedings were had at 2:30 o'clock P. M.:

Mr. Moore:

Q. Mr. Symons, will you file as Exhibit 50 to your testimony a chart showing the different parts of an engine and of a freight and of a passenger car, as you have divided them in the exhibits filed by you in this case?

A. Yes, sir. I haven't it here now, but I will file them tomorrow.

Cross-examination.

By Mr. Hill:

Q. I understand your theory is that about 80% of the injuries to freight cars is due to rough handling?

A. Yes, sir.

Q. What per cent of injuries to passenger cars is due to rough handling?

A. It is very small. It would be practically negligible, for the reason that they are not handled roughly except on very rare occasions.

Q. In your testimony in chief I understood you to say that the rough handling you confined to the freight car proposition.

A. In car matters, yes, principally.

Q. In regard to the locomotive repairs, you carry a factor of rough handling on that item?

A. Not separately expressed in figures; but I have in mind the fact that local switching is harder on an engine than through train
927 movement; and that at times the engine receives some little damage or injury at the time the cars may be damaged in rough handling.

Q. You mean that as between local and through freight trains, do you?

A. Principally, as through freight trains do very little switching. The shocks or impacts that would come to a through freight engine would be practically the same as those the passenger engine would meet with by being coupled on to its train at the starting point.

Q. You think, then, that the factor of rough handling in the injuries to local freight trains is a negligible one as to through freight locomotives?

A. To the through freight locomotive, practically so, yes.

Q. Just what do you mean by "rough handling?"

A. I mean any condition under which the property or equipment suffers an injury, or that results in causing repairs that would not be necessary through just normal wear and tear, ordinary train movements, or from coupling on the cars without striking them.

Q. I understood some of your illustrations this morning were that the shunting of a box car in the yards, and matters of that kind, you had in mind principally as to rough handling?

A. They are not always roughly handled when being switched but they are frequently handled roughly and, I might say, the
928 majority of the handling is what would be called rough handling, in that they strike or come together with an impact or blow, resulting in an injury to some part of the car structure, primarily with the draft gear and from that to the various parts of the structure.

Q. I inferred from your testimony that you had probably been making a study of these questions more from the standpoint of efficient management than from the standpoint of rate cases: Isn't that a fact?

A. No, sir. I have been making a study of them for years in order to arrive at the facts, and then use those facts in either questions of management, of rate cases, or of valuation, or any other purpose for which they might be needed.

Q. Your primary investigation, I should infer from the fact that rate cases have been quite recent, would be to aid your employer to obtain more economical and efficient operating conditions, wasn't it?

A. Yes, sir. Some of my early observations or investigations of rough treatment of equipment were for the purpose of impressing upon the management the fact that the freight equipment in particular suffered a great deal of damage in being switched and handled as they are, where a great volume of cars is handled in a short time

and under such conditions that they were not always taken care of as they should be, under normal service conditions.

929 Q. Those figures you introduced in evidence are quite strong illustrations of that fact.

A. I think they show very conclusively that cars are pretty roughly handled and that the expense of repairs is largely due to that rather than to normal wear.

Q. Your investigation, and doubtless your reports to your employers, was looking towards a bettering of those conditions, thereby reducing the expense of these repairs?

A. Yes, sir, in various ways. Not only in the handling of equipment but in such things *of* designing parts to more evenly distribute the strains through the car structure and if possible absorb the shocks and blows so as to minimize the amount of damage that could be done.

Q. Your history of the refrigerator cars on the Southern Pacific Railroad would fairly illustrate that phase of your work, I assume?

A. With regard to that particular phase of the work and also the track conditions that produce or contributed to the derailment of the cars.

Q. How much of the injury of freight cars do you attribute to track condition?

A. I have not made any subdivision of the injuries resulting from track conditions, but I will say in a general way that almost all derailments are caused by track conditions in combination with speed, and the effect of the derailment is damage to the equipment.

930 Q. How would you classify such damage as that to equipment, to line and terminal in these exhibits you have filed?

A. Well, I classify all rough treatment primarily to terminal. Then, knowing that some of it occurs in the character of service known as line service, the making up and breaking up of trains, I subtracted an amount which, in my judgment, is fair and reasonable, and apportioned it to line expense. So I do not see how I could make a division of the other particular elements you mention.

Q. That is the point I was coming to. I understand your deduction for that, and I know the principle is right; but I don't know enough about it to know whether or not your percentage is right. But I am getting to the fur*ht*er proposition, that there are frequent derailments and that is one of the great causes of injury to freight cars and other cars, isn't it?

A. I think not. There are a number of different causes. This one cost considerable but it is not one of the great ones.

Q. But it is not a negligible quantity, is it?

A. No, sir, but it is small in proportion to the total expense of repairs.

Q. Whether it is small or great, it is a considerable item of expense to a railroad, isn't it?

A. It is one of the items of expense, but it does not meas-

931 ure up to the others, by any means. It is very small compared to the sum total of repairs to freight cars.

Q. No matter how small it is I want to know how you take care

of that class of injuries as between line and terminal, in these exhibits you file, as contributing causes.

A. As I said before, I have not made any separate subdivision of that particular cause of repairs, this derailment, because a derailment cannot always be traced to any specific cause. It is usually a combination of speed and track conditions. And the track conditions that will cause a derailment are sometimes very hard to locate. The rolling of cars as the result of passing over alternating low joints, if observed from a proper position on the train will reveal the fact that at a certain speed when the oscillation of the car conforms to these alternating joints on each side, the car will roll violently and with cumulative stored up energy will eventually roll so violently that it will lift the truck off the track. Now by increasing the speed of that car these alternating low joints serve as a counter-acting influence and it stops the rolling. So it all brings itself back to the operation of natural laws. It is almost impossible to tell just what causes any specific derailment, unless, of course, there is a broken rail or something of that kind.

Q. I am using "derailment" more as an illustration, to illustrate track condition. What I am trying to arrive at is, how you have classified these various track conditions, such as derailments,
932 oscillations, low joints, and so on, between line and terminal in these contributing causes to car repairs.

A. I have not classified derailments in line and terminal. I have not considered track at all as a separate item. I have considered primarily as the base, rough treatment; and set up against that normal wear. I take from the rough treatment in terminal service a percentage, which in my judgment *it* is fair, of the expense that occurred in rough treatment under line conditions, as shown by the formula under which we are working. That includes cars damaged by derailment or otherwise.

Q. You include in the 10% you ascribe to line, or the 80% you ascribe to the rough treatment, track conditions?

A. It has its proportion. That is divided between normal wear and rough treatment regardless of where it occurred, whether on the road or in the yard, or elsewhere.

Q. Are you including bad track as a part of your rough treatment proposition?

A. No, sir.

Q. You are referring in that primarily to the improper handling of cars, especially in terminals?

A. Yes, sir.

Q. And a certain proportion of that on the line?

A. Yes, sir.

Q. But more of it in the terminals because, as I understood you, the switchmen were not as careful in handling cars as the train men out on the line.

A. That is one reason, and the other is that they have so
933 many more cars to handle in a short space of time; and frequently the yard facilities are cramped for room and they hurriedly switch out their trains.

In hump yards, unless the cars are ridden down by what is called a "fielder" or even if they are so ridden, they run away at times through the failure of brake chain, and come together with great force. Then sometimes a switch may be misplaced in the yard causing derailment.

Q. That, broadly speaking, would be classified as improper handling?

A. I think so. It is one of the accidents incident to railroad operation, due to the imperfections of man or the machinery he handles.

Q. It goes back to the imperfections of man, either developed in the appliance or his particular handling of the appliance?

A. I think there is some of that imperfection in all of us. I haven't found anyone entirely free from it.

Q. There is quite a difference in the handling of freight cars in a hump yard and that in a level yard, isn't there?

A. Yes, sir.

Q. Where is the greater damage done?

A. Well, there are a greater number of cars damaged in the level yards where they do what is called "individual switching;" but the damage when it does occur in the hump yard, on the indi-
934 vidual cars, is usually greater in extent. In switching in an ordinary yard, with individual switching, several hundred cars might be damaged, and none of them show a sufficient amount of damage to be taken out of the service and sent to the repair track, although all of them may have sustained some damage. They would go on their way. Whereas in a hump yard, say that the fielder could not hold the cars down and cushion them down to the cut and they struck, it would usually damage the two cars coming together so badly that they would be taken to the repair track or hospital, as it is called.

Q. The individual damage would be greater but the average damage less, as I understand it?

A. Yes, sir, that is it.

Q. Take for illustration one thousand cars handled in a hump yard and a thousand cars handled in a level yard, in dollars and cents for a given period, which would cost the company the most?

A. I expect the thousand handled in the terminal yard probably would, although it would be absorbed in the character of expense and not carried under the caption of accident repairs. It would be cumulative to the extent that by and by a car with draft gear that originally had a strength of three hundred to three hundred and fifty thousand pounds would be pulled out somewhere on the line of road by an engine that would have twenty-five thousand pounds tractive power. The reason would be that the cumulative effect of the various blows in the various yards handled, none of themselves being
935 sufficient to break out the gears would finally break out all of the rods, or break them until only one was left, and it would be finally charged to the engineer rather than to an accident.

Q. So the effect of the rough handling would not develop in the yard where it occurred, but in some later journey?

A. Yes, sir, or when the car is taken in for a general overhauling,

and the car repairer, who might be called a doctor of sick cars, could tell by looking at it what caused the damage that made necessary the replacing of the parts.

Q. Suppose he knew the history of the various happenings that had occurred, would he attribute that to line or terminal service?

A. He wouldn't have anything to say about it. He would just repair it and send in the account of what it cost.

Q. Suppose you were to analyze his figures.

A. I would do as I have done here, put it at 80% terminal and 20% line, because I know that is what it is.

Q. You know that from your observation and experience.

A. Yes, sir, I have been studying it for twenty years or more.

Q. You base those percentages that you have mentioned here upon your observation and experience and study of these conditions?

A. Yes, sir, and my experience in handling them.

936 Q. I included that in my question, or I intended to.

A. Excuse me, I overlooked that.

Q. We have here some percentages in the formula, of some very learned doctors on the subject. They appear at pages 13 and 14, if I recall correctly. On page 13 it says, "it, therefore, was submitted by Letter Ballot by the Chairman of the General Managers' Association to its members, as to the proportions properly chargeable to line and terminal, and the average of such expressed opinions has been used in the assignment under these two classes. The submission of the question was accompanied by a whole explanation of exactly what under this formula constitutes line and terminal service respectively. The proportions thus arrived at were 64.94% line and 35.06% to terminal."

Now, I find in your exhibit that you make that 82.5% line and 17.5% terminal: Is that correct?

A. Yes, sir.

Q. Then you and these other learned doctors on this subject seem to have differed broadly on that, haven't you?

A. Yes, sir, with many of them.

Q. This seems to be the average (indicating page 13).

A. Yes, sir.

Q. You have differed quite widely on that subject with the average?

A Yes, sir, I have.

Q. That, I assume—I know nothing of it except what is stated there, is the average of the opinions of these general managers

937 and the percentage you give is your opinion based, as you have stated, upon your experience, observation and study?

A. Yes, sir.

Q. I see on the freight car repairs you and these doctors do not differ widely: Yours is 35% to line and theirs is 36% and a fraction; and yours is 65% to terminal and theirs is 64%?

A. I think that is correct, Judge Hill, 35% and 65%.

Q. On locomotives, as I understand your testimony, you average a passenger locomotive as 70% and 30%: Was that correct?

A. Yes, sir, on the average local with the through passenger.

Your exhibit did not show it, but that is the way I remember you stated it.

A. Yes, sir.

Q. These other doctors take all locomotives and make (dropping the fractions) 65% and 35%.

A. It is the same as the cars.

Mr. Moore: You said all locomotives.

Mr. Hill:

Q. That is passenger locomotives, but this formula does not take into consideration local and through.

A. That is correct.

Q. That is what I had in mind. The formula on passenger locomotives is 65% and 35%.

938 A. Yes, sir, passenger engines and passenger cars are the same in the formula.

Q. They adopted the passenger car as the basis for the other?

A. Yes, sir.

Q. On the freight cars they used the time study. Just wait a moment, Mr. Symons.

Mr. Hill: Mr. Hamilton, can you tell me what percentage that worked out?

Mr. Hamilton: The freight locomotive maintenance was divided on the basis of the time devoted to line and terminal service 75.08% to line and 24.92% to terminal. That is on the Frisco time study, local to our line.

Mr. Hill:

Q. That is 75% and 25%, dropping the fractions?

A. Yes, sir.

Q. 75% to line and 25% to terminal.

A. Yes, sir.

Q. Mr. Symons, you differ considerably from that, do you not?

A. Yes, sir, I had 66% and 34%.

Q. Yours is practically 5% difference each way?

A. Yes.

Q. It is more on the passenger cars; it is 18%?

A. Yes, sir.

Q. Mr. Symons, you spoke in very complimentary terms this morning of an old friend of mine who has been battered and kicked around very much. I mean Professor Wellington. I was

939 very glad to hear that. Now I want to call your attention to Mr. Wellington's table and I think you have followed it pretty closely in your analysis of the contributing causes, other than as to the percentages, haven't you?

A. Yes, sir.

Q. Have you the book there? I am using the edition of 1908, "The Economical Theory of the Location of Railroads."

A. I have the same in my office but I had in mind it was the edition of 1907.

Q. This volume says, "Sixth Edition, corrected," and at the bottom of the page is 1908.

A. Yes, sir.

Q. Your distribution of engine repairs I think, changing the phraseology a little is identical with his division of the various parts of the engine, isn't it?

A. I believe they are very close. He has six contributing causes——

Q. I am driving at one thing and you at another. Get out your exhibit where you analyze repairs. You make the same analysis of the locomotive, both in freight and passenger, don't you?

A. Yes, sir.

Q. Then turn to Professor Wellington's table 85 at page 203 of this book, and I will ask you if your analysis of the locomotive is not substantially the same.

A. The fundamentals are the same.

Q. I am not speaking of percentages at all, but the analysis of the locomotives into its component parts—boiler, running gear, machinery, and so on.

A. There is a difference which reflects the difference in
940 equipment between that period and this.

Q. Point out those differences, will you, Mr. Symons?

A. First, I have twenty-six per cent of boiler——

Q. I am not referring to percentages, but to the analysis of the locomotive into its component parts. Haven't you followed the same analysis as Professor Wellington?

A. In this subdivision of items, because the parts bear the same name now that they did then.

Q. That is what I am asking you. You followed his analysis.

A. Yes, sir.

Q. You had a difference in percentage which you explained is the difference in the contributing causes between the time this table was made up and now.

A. I did not follow his table. I made these tables long before I was able to buy Wellington's book. I never saw it until long afterwards.

Q. You and him agree upon the component parts of the locomotive.

A. I certainly agree with him now, as to component parts.

Q. The same is true as to the component parts of freight cars, isn't it?

A. I have eleven items and he uses eight. I have subdivided it.

Q. They are the same items, aren't they?

A. Some of his carry two items where I have a single
941 one.

Q. But you have considered the proposition from the same standpoint?

A. Yes, sir. I think if I had made my table at the period he

made his I would have used that table, because a number of parts had been added to since then.

Q. You have brought yours down to present day conditions?

A. I have made a more elaborate analysis because the different parts bear a different relation now than they did at that time to the whole structure.

Q. When you come to these contributing causes, the first cause which Mr. Wellington has is the effect of time, age and exposure: That is in both the locomotives and the freight car tables?

A. I think so.

Q. Have you provided for that in your distribution of causes?

A. It is taken care of in a general way in the life of a car or the life of an engine. The parts that are removed on account of normal wear and those that are removed on account of accidents, or maybe partial decay. At the time Mr. Wellington made his table I think there were a less number of accidents, and cars lived nearer a normal life, so that was more of a factor then than now.

Q. No matter what the percentage may be, it is a factor
942 now?

A. Yes, sir.

Q. Have you considered that factor in your table?

A. It is not considered in terms of percentage, but it is always considered.

Q. How far do you divide that factor between line and terminal?

A. As shown by the total of my percentage of line and terminal expense. Some of it may be in the parts that are destroyed or damaged by breaking, and it may be under some that are worn out. There is no way of telling that.

Q. Time, age and exposure cause freight car repairs, don't they, independent of accidents?

A. They affect the part, yes.

Q. Isn't that practically, in other words, depreciation?

A. It is when it is not replaced at the proper periods. Depreciation, properly defined, means and means only the preservation of the integrity of the capital account. And if cars or locomotives are not kept in a high state of repair, or a state of repair which their value plus the amount written off for depreciation will equal the purchase price, then the integrity of the capital account has not been preserved.

Q. That is an excellent bookkeeping definition, Mr. Symons, but I don't think it has anything to do with the proposition we
943 have before us. Take a coal car; aside from the way you carry that upon your books that coal car has a certain life. Now what is the average life of a coal car?

A. The average life of a freight car would be twenty years; of wet cars, sixteen or sixteen and a half years; of a dry car a little over twenty years. A coal car would come probably a little under the average, due to two things: first, the manner in which it is loaded——

Q. I don't care about the detail. Say the average life of a car was twenty years, aside from all your bookkeeping, capital account

and things of that kind, that car has got to be repaired on account of its age, hasn't it?

A. Unless the parts have been broken in accident and they are renewed, then you would not have to renew them for decay because they have not had a chance to decay.

Q. Suppose it never has an accident during its twenty years' life, wouldn't that car have to be repaired on account of its age?

A. Yes, sir, under a proposition of that kind there would have to be some parts of it, say the flooring or the siding, the parts exposed to the elements, or damaged by loading and unloading, which would require repair, either the renewal of the part or the repair of it.

Q. Mr. Wellington ascribes 70% of that to locomotives and 60% to freight cars. Whether that percentage is right or wrong, I am not interested in, but it must be considered. I want to know if you have taken care of that element in your division betwen line and terminal?

944 A. My division is strictly between line and terminal. That is the scope of my work. And regardless of whether that is an old, decayed part of the car, or a new one, that percentage is shown. And that is taken care of in the two divisions. All the six of Mr. Wellington are combined in the two in mine. They go in the proportion—the condition carries them, whether by accident or by age. If they result in a renewal by age, it would be what you would call a line service; if it resulted in a renewal by reason of an accident, it would be terminal, unless the accident occurred in doing line work.

Q. Passing the accident question entirely, your other tables take care of that. Let us get down to time and exposure or depreciation. you recognize that element?

A. Yes, sir.

Q. Professor Wellington says 6%; say that is correct, for the sake of the argument; where do you put that 6% as between line and terminal?

A. My line and terminal is not composed of elements where time and exposure is expressed in that language, but it takes care of everything in the car.

Q. You ignore time and exposure in your tables?

A. No, sir, I do not.

Q. Locate it.

A. It is in the line and terminal and the repair and maintenance of the car, no matter whether line or terminal is charged.

945 Q. I want to know what proportion is line and what proportion is terminal.

A. I don't know that anybody could tell you that. I wouldn't undertake to tell you that.

Q. You have not undertaken to make a division between line and terminal of that particular item?

A. Not in that table, in that particular language, but it is in there and is taken care of.

Q. Where is it in there? That is what I want to know.

A. You will find it in the foot note at the bottom, "All con-

tributing causes that occasion repairs to cars" are taken care of and probably charged to line.

Q. Do you mean it is included in that?

A. 35% of the cost of repairs to cars is charged to line and 65% to terminal.

That does not make any subdivision or put any estimate upon the shortened life or the appreciated life of any particular piece in the car. Time and age shorten the life of all railway equipment, but the question of line and terminal expense includes all elements that tend to shorten the life of a car or affect it. When any part of a car is removed—for instance, the wheels, that represents time. When a car is painted—for instance, you will find item No. 11, painting: That is affected principally by time, and I have divided painting 50% and 50%.

Q. Mr. Wellington has painting carried as a separate
946 item.

A. (continued). Take wheels, I have divided those 60% and 40%. Time has something to do with the life of wheels.

Q. That is just a repetition.

A. (continued). Car body is 80% line and 20% terminal. A car body is affected more than anything else by time and the elements; they do not affect the trucks, to speak of.

Q. But say for argument it is 7%: How do you divide those in these tables? Have you put it in or ignored it?

A. They are all combined. I have not considered Professor Wellington at all in making my tables.

Q. Have you considered the elements, whether you have considered Professor Wellington or not?

A. Yes, sir.

Q. Show me where it is considered in the divisions you have made.

A. You will find it in all of them except wheels—well, even in wheels and axles, you cannot make mileage without occupying time and mileage wears out wheels and brasses.

Q. How much of that percentage of 60% and 40% is due to depreciation and how much to other causes?

A. It depends on how many miles the car makes.

Q. I am asking you about that table. How many miles did you base that on?

A. They make an average of about eight thousand miles an year.

Q. How much has this item of exposure entered into that
947 division of 60% and 40%, in wheels?

A. A car wheel will ordinarily run about fifty thousand miles, and on a time basis it will take about four and a half years to wear it out. We do not express it in time, but in miles. It is in there on the basis of sixty per cent line and forty per cent terminal. You can convert it into wheels if you please.

Car roof, I have shown at 30% line and 70% terminal. Time affects them.

Q. But my point is, you have not carried — as a separate item; you

have taken that, as I understand it, into consideration by forming your judgment on these various items.

A. The time element could not be used in a subdivision based on line and terminal.

Q. I don't think so. I don't know anything about it. You think time and exposure, or in other words, depreciation, could not be expressed as between line and terminal?

A. You could not express it separately, because it is already in there. Everything that contributes to shorten the life of a car is in line and terminal, making the 100%.

Q. The next item Mr. Wellington uses is stopping and starting at way stations: How have you considered that element in your division between line and terminal?

A. I have considered it as defined in the formula: The making up and breaking up of trains is line service; and the stopping at stations is terminal service. Starting is also a terminal service
948 unless you stop there for a line purpose, that is, a railroad crossing, or to take water or coal for the engine, which is necessary for the movement of the train over the road. But if it stops to let down or pick up passengers, or do work at the station, it is a terminal charge; and not only the deceleration but the acceleration of the train to speed again would be a terminal charge.

Q. How do you divide this particular item of starting and stopping between line and terminal? What basis have you for dividing that item of injury?

A. In the time studies which I used as supplementary to and in support of my analysis of locomotive repairs, I found that the percentages originally used did not take into account an allowance for starting and stopping trains at stations.

Q. What do you mean by "originally used?"

A. I mean the formula which you read some moments ago, and in which you called my attention to the fact that I had disagreed with some of the others as to the percentage, I having made mine independent of theirs.

Q. You mean, the General Managers did not take into consideration starting and stopping?

A. I have found in the time studies which had been made and which I used as supporting or corroborating my studies there had not been an allowance made for starting and stopping.

Q. That is, in the time study?

A. Yes, sir.

949 Q. Had the General Managers taken starting and stopping into consideration?

A. I cannot say as to that.

Q. You did not study those?

A. No sir, I did not handle that.

Q. Did you see that data?

A. Yes, I have seen their data, but I have not analyzed it piece by piece because I did not want my mind to be in any way influenced by anything any of them said.

Q. All I wanted to know was whether they took into consideration that starting and stopping as an element of damage?

A. I don't know, but I think they did. I did not study their data because I wanted to approach the matter in an open frame of mind.

Q. Having approached it in that frame of mind, I want to know just how you divided it between line and terminal?

A. That is just what I started to answer. I have assigned to locomotives of freight trains, for the purpose of reaching a fair division between line and terminal, 12 minutes for the starting and stopping at stations, which is low; it would usually be more than that, probably.

Q. That is in a freight train, a local or a through?

A. That is on an average.

Q. Twelve minutes for a freight train?

A. Yes. That is probably a little low; it would be a little higher than that.

950 Q. You have that 12 minutes, and you take the ratio that 12 minutes bears to the total time at the station: Is that the way you reach it?

A. I use that 12 minutes to show the amount of terminal work a locomotive does, and I compare that with the actual time the engine is on the road, less the time it is waiting for trains and other delays, when it would not be doing any work.

Q. I do not quite catch that. I want to know the division of that between line and terminal.

A. In car repairs?

Q. Yes.

A. The time element does not enter into car repairs.

Q. We are discussing locomotives at the present time. I will ask you later about car repairs.

A. Take the total time the engine is on the road, and subtract from that the time it is waiting for the trains, and make a comparison of the ratio of the remainder between the time waiting for trains, and accelerating and decelerating,—that is terminal; the rest is straight road time.

Q. But I am speaking of the time the locomotive is starting and stopping: isn't that a specific element of injury to the locomotive. How have you taken into consideration that specific element as between line and terminal?

A. Just as shown on my table here (indicating), a through freight would you prefer, or a local?

Q. I don't care; any locomotive.

951 A. A through freight locomotive, the contributing causes making necessary repairs, I placed at 70% for line and 30% for terminal.

Q. I understand that. But that is not my question. Out of that 30% and 70% there is one specific part which is due to starting and stopping: Now I want to know how you have divided that specific part, the stopping and starting, between line and terminal?

A. Well, that is divided primarily, in this table, using as a basis

the total cost of repairing the locomotive, which is $2,541; that is then assigned to the various parts of the physical anatomy of the engine. Then that is sub-divided between line and terminal on the basis of my personal knowledge, as the result of my experience, in making repairs to locomotives occasioned by that kind of service, either local freight or through freight, as the case may be. That study was then supplemented by the time studies of trains conducted by the Rock Island and the Santa Fe; on the Rock Island on two or three districts and the Santa Fe two districts.

Q. I don't want to interrupt you, but that is not my question at all. Take your illustration, to get at my meaning: You say there were $2,000 worth of repairs to that locomotive——

A. $2,541.

Q. Well, take $2,000 for illustration. According to Professor Wellington's table 15% of the injuries that caused those repairs was caused by starting and stopping at way stations. Very likely you will not agree with the percentage, but you do agree that that is an element of damage?

952 A. Yes, sir.

Q. Accept for the sake of argument his percentage, that would be $300 due to starting and stopping, out of that $2,000. Now, if you divide that $300 between line and terminal——

A. Mr. Wellington's divisions and mine are on an entirely different bases, and are not comparable. I do not know what Mr. Wellington had in mind when he made his table.

Q. You know that starting and stopping are in and of themselves an element of damage to locomotives?

A. Yes, sir.

Q. Take $300 out of $2,000 as an illustration of that damage. I am not referring to Proffessor Wellington's table in any way at all except to get the original fact. There is a certain sum of money that the company pays, by reason of the starting and stopping of its locomotives. I want to know how you have divided that sum between line and terminal?

A. I haven't made the division that Proffessor Wellington has at all.

Q. I am not referring to Professor Wellington at all. I am referring now to how you have done it.

A. In the case of the local freight engine I have $1,524.55 to line service, and $1,016.45 to terminal; with the through freight engine I have 1,738.07 to line service and $802.93 to terminal. That is the sum total of the items, eight in number, among which I have divided the total cost of repairs, and then made a sub-division between line and terminal based on my expert knowledge of what it would be in per cents.

953 Q. I want your expert knowledge as to how the element of damage from starting and stopping a locomotive is divided between line and terminal expenses.

A. The stopping and starting is a great deal more severe than straight road running. The probabilities are that it is safe to say that particularly in starting there is more damage to an engine,

or it causes more repairs, or makes necessary more repairs, in going the first two miles approximately, or such distance as is necessary to accelerate the train into schedule speed than there would be in hauling the train three times that distance.

Q. That is a mere comparison of the expense of starting and stopping. I am referring now to the particular expense of the repairs to that engine: On starting and stopping have you put it all in line, or all in terminal, or have you divided it?

A. I have divided it between line and terminal.

Q. How have you divided it?

A. It is all in there, in line or terminal. The local does more, and the through does less terminal work.

Q. How do you get at the difference between the local and the through?

A. By my knowledge of not only the repairing and building, but also of running engines.

Q. I am asking for your expert knowledge on that subject. Take a local freight train, how much out of $2,000 repairs on a particular local freight engine would you attribute to starting and stopping?

954 A. Starting and stopping, I would divide between line and terminal.

Q. Before you get to a division you must get a total amount in dollars and cents of the injury caused by starting and stopping?

A. I don't know how to determine that with such precision as to express it in dollars and cents, for the reason that the conditions might apply to a locomotive or a car, as previously described. For instance, frequently a boiler, "primes" as it is called, the water being carried over into the cylinders. There is no apparent failure of the engine, but afterward the cylinder head may blow out, or when the engine goes into the shop the main axle broken, or crank line is bent, all require expensive renewals. These failures may probably be largely caused by starting, but no one knows just what the exact amount is.

Q. You have not considered that as a separate element of injury?

A. I have certainly considered it in the greatest detail I think possible to follow, but I have not expressed it separately, confining myself to line and terminal, which defines the scope of the work I have in charge, regardless of what Mr. Wellington or any one else says as to divisions.

Q. Before you get to a division you must have a sum to divide?

A. I already have the sum.

Q. You have a sum—say $2,000 has been put upon a given locomotive?

A. Yes.

955 Q. You have got to divide that expense between line and terminal?

A. Yes.

Q. But before you get to a division of the various sums making up that $2,000 you have to find the cost of each, haven't you?

A. In my mind, yes.

Q. Now what part of that $2,000 will you say you think is caused by starting and stopping?

A. I haven't put it in dollars and cents. There are other important elements which absorb this.

Q. But we are discussing that element now. You have not taken that into consideration as a separate element?

A. It is in this calculation. You could not make that calculation without considering it?

Q. You considered it in your mind, but you didn't find first specifically what was due to starting and stopping and then divide that between line and terminal?

A. I know practically, from handling it, in my experience.

Q. Tell me from your expert knowledge, of that $2,000 what was due to starting and stopping?

A. I wouldn't undertake to put it in dollars and cents.

Q. I am entitled to have the benefit of that information.

A. I have put it in this division of line and terminal. I couldn't put it in those without knowing what it amounted to in its physical effect.

Q. That is exactly what I am trying to find out.

956 A. I said a moment ago that probably in going two miles, or ten minutes after starting from the station, an engine would necessitate more repairs than it would in going five miles out on the line. But that is not a matter that could be absolutely determined, unless you took the engine apart every time you started and stopped it, in order to find out whether it had suffered any particular injury or not. If so, it would cost probably five times its value to make a test down to that degree of refinement.

Q. Don't you recognize starting and stopping as a considerable item of injury to a locomotive?

A. Yes, sir, I have so expressed myself.

Q. If you were going to find the total injuries to a locomotive don't you necessarily have to take into consideration every considerable item making up that total?

A. I take into consideration everything the engine does.

Q. Certainly. Now I want you to express to me in percentage or in dollars and cents, the amount you have taken into consideration out of any given sum you found for engine repairs for that item of starting and stopping.

A. You will find them reflected here.

Q. I didn't ask you that?

A. I made this that way, it covers line and terminal, and I am not going to make it any other way.

Q. I am not asking for line and terminal?

A. I will be glad to point it out to you.

Q. Before you get to line and terminal you must have that point to consider. I want to know that first; then I want to know,

957 second, how you divide that between line and terminal?

A. In the time studies that were made, as I previously stated, the element of starting and stopping was not considered, and I added to them an amount equivalent—or an amount that was con-

sidered fair and reasonable, for starting and stopping, although I took a rather low figure, in freight twelve minutes, and in passenger I think six and one half minutes—to show a division of the time of the engine on the road, which reflected the amount of service it performed, and the length of time it was engaged performing it. That checked very closely with my analysis of the locomotive as shown on Exhibit 48.

In neither of the cases were the sub-headings used which Mr. Wellington uses. Stopping and starting, road running, switching, standing at stations, and being housed and cared for at the end of runs, is what the service consists of. All of those matters were in my mind in making the division between line and terminal. But I have not placed under a separate heading or caption "starting or stopping" as a separate item, because that involves a number of headings while I used only two, as between line and terminal, and they are based upon my knowledge and experience of the design, construction, operation and maintenance of locomotives, and the contributing causes making necessary repairs of any character whatsoever.

Q. I have no doubt you think that is an answer to my question, but I don't. I would like the stenographer to read the question again, and see if you are willing that that should be your answer to it.

958 (Here previous questions and answers are read.)

Are you satisfied to consider that as an answer to my question?

A. Yes sir.

Mr. Moore: It is practical to separate and determine the amount of expense of repairs to engines which grow out of starting and stopping and separate that from other expense charges?

A. No sir. I have already explained that in answer to a question of Judge Hill's, that the repairs are necessary as the result of a combination of defects or wear, and it is not ascertainable as to the exact cause of each, or as to the subdivision making necessary the repairs, between starting and stopping.

Mr. Moore: Some part of the engine may wear and may require repairing from several causes, might it not? I mean when an engine goes into the shop for repairs there might be a part that needs repair from a number of causes, it might be this, or it might be that. That is true, isn't it?

A. Yes sir.

Mr. Moore: Is it possible to separate and say so many dollars is for this cause and so many dollars for another cause, or a certain per cent from one cause and a certain per cent from another cause?

A. No sir. As an illustration one of the greatest causes of injury to a locomotive in leaving a terminal, when accelerating a train into speed, is the slipping of the drivers, causing them to spin
959 around, as you have all seen. While an engine is in that condition, or being operated in that condition, or permitted to operate that way, it is liable in just a second to have all the rods broken off and the crank pins torn out or the cylinder heads frac-

tured, or partially fractured. And the engine may run along for months. And then, weeks afterward, when that engine goes into the shop, these defects are found, when it is in there for some other cause. Or a complete failure right at that point might result later on. Again, under certain weather conditions an engine when running along with a train between stations particularly on what is called a frosty night, and what engineers term a "bad rail," when a train is under way, under normal speed, the engine commences to slip violently, which results in the same character of damage to the engine as though pulling away from the station.

It is absolutely beyond the power of any man, when the engine does come into the shops for over-hauling, to tell what proportion of that damage is caused by what occurred between stations and what occurred at the stations.

Q. Can you or any other man tell what part of this $2,000 which Judge Hill assumes the engine repairs amount to, or what per cent of the $2,000 was caused by starting and stopping, further than you have estimated it from your experience in a general way. Can you estimate it in dollars and cents, or in percentages?

A. I think not.

Mr. Hill: Can any man estimate it in dollars and cents or percentages, between line and terminal?

A. I think so. I think we can give a fair per cent of the whole thing.

960 Q. But cannot give the constituent elements making up that whole?

A. You cannot tell where they all occurred.

Q. Do not all mechanical engineers recognize starting and stopping as one of the considerable contributing causes to injuries to locomotives?

A. Well, all men who have knowledge of locomotives know that that is more severe on them than the road running between stations, but I never knew of one who claimed to be able to draw the line of demarcation as between a certain character of injury that might be the result of either station service or line service between stations.

Q. But that is recognized as one of the considerable contributing causes to locomotive repairs, is it not?

A. It certainly is and it is clearly reflected in my analysis.

Q. Take another one: Is not the getting up of steam recognized as a considerable contributing cause to locomotive repairs?

A. To the boiler, yes; it does not affect the machinery.

Q. It is part of the locomotive, is it not?

A. Oh, yes.

Q. Making up trains is another considerable item, is it not?

A. Well, that is the service to which switch engines are assigned.

961 Q. Is that always done by switch engines?

A. It is done by switch engines except at out of the way points where a local freight engine makes up its own train.

Q. Is there not a very considerable amount of that done by all local freight trains in Arkansas?

A. Oh, yes, switching on the line.
Q. Certainly.
A. Yes.
Q. Is not that recognized as a considerable item?
A. Yes.
Q. Take those three items: Starting and stopping, getting up steam and making up trains.
A. Yes, sir.
Q. Each of them is recognized by mechanical engineers as a considerable contributing cause to the repairs: You give the same answer to each of those as you give about starting and stopping, that no man can figure out the proper percentage of either one of them?
A. I think that probably if a corps of experts were to follow one individual engine they might probably be able to make some little estimate on it, but they would not be able to arrive at the exact figures for the reason that they do not know when certain injuries occur to an engine, as a great many of them, and many of the most expensive ones, are what we call hidden defects; that is, they are not visible to the eye. For instance, a locomotive comes in for
962 repairs, or renewal or general overhauling, and we find after it comes into the shop that a driving axle is cracked, that it requires a new driving axle, or a driving box is broken at some point where we could not see it by an inspection; or that a cylinder or cylinder saddle is defective in a way that it has not shown in service: No one can say whether it happened at the station, in switching cars; running over a hill, or while running along at the maximum speed between stations. It might occur almost anywhere, or it might be the result of a combination of strains which the part underwent in these various services, which could not be subdivided and separated as you suggest. We know the axle costs eighty or a hundred dollars, but we don't know whether forty dollars of that happened in the station or not. We do know in a general way that the switching by local engines is much greater than that of through freight engines, and that is clearly reflected in my subdivision where I show 40% of repairs to locomotives chargeable to terminal and only 31% to through freight trains. All those items are in there, and clearly divided between line and terminal.
Q. They are in there in the form of your opinion, either consciously or unconsciously, given on each of these items?
A. My knowledge of the contributing causes themselves, regardless of anybody's else formula.
Q. But you cannot separate those contributing causes into
963 their various elements that have been referred to.
A. I don't think anybody else can and express it in dollars and cents in just the way you ask for it.
Q. Is not curvature and grades a considerable contributing cause of injuries to locomotives?
A. Well, grades don't cause them much injury. The curvature is rather bad on the flange wear of the wheels.
Q. Is that an element considered?
A. Yes, every element that Mr. Wellington or anybody else men-

tion-, I have considered, because I considered everything that makes necessary the repairs.

Q. How much curvature and grades have you assigned to terminal?

A. I have not separated it in percentages, or dollars and cents, and I don't think it is possible for Wellington or anybody else to do so, although he probably made a fair guess at the time he made his table. I haven't used that formula. I used two subheadings while he used six.

Q. Is not the element of distance that the train runs represented, I presume, by engine miles, or ton miles, or train miles, one of the largest contributing causes to the repairs?

A. It is in a train that runs, but one that switches all the time the terminal would be one of the largest. In a through train it is larger——

Q. I am speaking of running, whether running in a yard
964 or running on the line.

A. You are speaking of locomotives?

Q. Yes.

A. Of the through freight engine, yes, but of a local freight engine it would probably be almost half and half.

Q. Half and half between switching and running?

A. Yes, sir; that would depend upon how close the stations were together.

Q. I am not speaking of how much relative time is given to each; I am taking the subject of running alone. The very use of the engine on the rails in making engine miles is of itself a contributing cause to injury, and necessarily to repairs, is it not?

A. Yes, it helps wear them out.

Q. Why, certainly. How do you divide that running between line and terminal?

A. I will give you the same answer that I have given you on all of the others. I have subdivided between line and terminal. The line is running and terminal is working at stations.

Q. You take all the running and call that line, do you?

A. Yes, sir.

Q. Although a local freight may be spending one-half of its time in running up and down switching trains out of local stations, yet you call that line?

965 A. Making up and breaking up trains is line work——

Q. You are referring to the formula of making up and breaking up trains, as I remember, in the yards, are you not?

A. Yes, sir.

Q. I am not speaking about that, but about the performance of a local train at way stations where it performs the duties of a switch engine. It does a great deal of running—I believe you stated a while ago that probably one-half its time was devoted to that and the other half in making——

A. I said a local engine might do that.

Q. That is what I am talking about: You counted all of its

work, whether making up those trains or in running between division points, as line?

A. I count all switching at terminals and switching to industry tracks, that is terminal.

Q. I understand that, but I am not talking about that.

A. The running between stations is line work.

Q. I am talking about the local freight engine between division points where it makes up and breaks up trains, does switching and sets out cars at local stations, and, as I understand you, you count all of that as line?

Mr. Moore: Wait a moment, Judge. Make your assumptions correct.

966 Mr. Hill: I am asking him. That is the way I understood him. If I did not understand him correctly let him explain.

A. Making up and breaking up trains is terminal work no matter where you do it. If you make up and break up a train it is terminal work under the formula, and I have made my study and reached my conclusions with due regard to that formula.

Q. Suppose you are to set out a car at a little country station, and a local freight engine does it: I want to know how you counted that, as line or terminal?

A. Setting out a car at a station?

Q. Yes.

A. If that car stops there that is a terminal charge.

Q. You counted that as terminal?

A. If it is handling a car that goes on through it is a line charge.

Q. How have you divided that in this particular item of the injury to the engine between line and terminal in making up your percentages?

A. That is all reflected in the service of the engine, as shown in the subdivision of the particular parts, the wear and tear on local as compared to through freight engines. To illustrate that, take the items of machinery and running gear and brakes: The brakes in a local freight engine are 85% worn out at terminal work and

967 only 15% in line, while on the through train they are 25% and 75%, 75% terminal and 25% line, because the local freight engine switches around stations and does a great deal of terminal work and uses the brakes.

The next most important item would be the machinery; the machinery which is on a local freight engine: 28% of the total 55% of it is supposed to be used in line service, and 45% in terminal service.

Q. That is just a repetition. I am trying to find out which way you put this injury that we are referring to. Have you put it to line or to terminal where the local engine sets out and picks up cars at way stations between division points?

A. That is terminal work except where it is through cars. If the car terminates there it is a terminal charge; if it does not terminate there it is a line charge.

Q. Is that the way you have made up your percentages?

A. If the car is going on through or if the train is a through

train—if the car goes through and they handle it while doing work at that station and it receives an injury or wear (it must receive some wear) it is a line charge to the car.

Q. I just want to know which way you classified that: You classified that as terminal, did you not?

A. Terminal switching is all terminal charge.

Q. All this way station switching which is done by the local engine, you have counted as terminal in making up your figures?

968 A. No, not all of it.

Q. What have you not counted as terminal?

A. I assume that under the formula the definition, making up and breaking up trains is a line charge.

Q. The making up and breaking up of trains referred to there is trains at division points.

A. Probably, yes.

Q. I am not talking about division points, I am talking about way stations between division points, the setting out and picking up of cars and switching done by local engines at those way stations.

A. Industry tracks and so on is a terminal charge.

Q. If there is an industry track there are not the switching and picking up and setting out of cars done by local engines at way stations, and do you count that as line or terminal?

A. I count that as terminal.

Q. In the distribution to the freight car repairs you have followed the same general plan that you have just been describing as followed for locomotives, have you not?

A. In making a subdivision of the physical parts, or physical elements, of the car comparable to the anatomy of the car, yes.

Q. I was not referring to the physical parts of the car. Of course, you made those——

A. I don't use any time——

969 Q. —but what I mean is that your division between line and terminal has been made upon the same general basis that you have made the division between line and terminal upon engines.

A. Yes, except that I don't consider any time element, don't use it in attempting to check figures or corroborate them.

Q. You don't use Mr. Time Study, then, when you come to allocating the expenses to line and terminal for freight car repairs?

A. No, sir.

Q. You ignore that entirely?

A. Just use the facts and physical condition of the car and the cost to repair it.

Q. How do you do about the passenger cars, does the time study come into that?

A. No, sir.

Q. You only use the time-study on the locomotives?

A. I only use that as supplementary.

Q. Take Exhibit No. 44: As I understand it, you have taken a

given number of dollars there and distributed those dollars according to these percentages——

A. Is this for freight or passenger cars?

Mr. Moore: Exhibit No. 4 is for freight cars.

Mr. Hill:

Q. Would not a frame box car be one?

A. That is a freight car, yes.

Q. You have taken a given number of those which represented a certain bill of repairs, and distributed that according to the
970 percentages that you have had set down here?

A. Yes, sir.

Q. Then you have taken a large number of those, I presume, to work out average conditions?

A. Twenty-eight, I believe.

Q. Can you work out average conditions for a table of this value by twenty-eight cars?

A. Yes, I think that is fairly representative.

Q. Twenty-eight cars?

A. Yes, sir.

Q. How many cars does the Frisco line have in its whole system?

A. 32,017.

Q. Do you think twenty-eight cars is fairly representative of that 32,017?

A. I think they are fairly representative for that purpose. That, however, is a Santa Fe car. That is simply to show the method employed in making a distribution of the expenses.

Q. But I understood you to say you made up these percentages only from an examination of 28 cars: Is that correct?

A. No, I did not intend to say that, Judge. I said I had used these twenty-eight cars and averaged them, which I thought was fairly reflective, or served as a very good instrument to indi-
971 cate the freight car situation, although if I had no knowledge of any cars except those twenty-eight I would not think of reaching a conclusion based on them.

Q. I did not mean my question to imply that, I meant that you have produced your average conditions out of the application of your formula to the twenty-eight cars.

A. My conclusions find expression through the average of those twenty-eight.

Q. But the average that you produce there is produced by its application to only twenty-eight cars, is it not?

A. Yes, sir.

Q. If you should apply this formula to twenty-eight hundred cars would not the result be quite different?

A. It might be different; it would depend a little on the cost of repairs to the various parts, or parts that might have been changed. It might vary a little.

Q. Vary materially on different classes of cars, would it not?

A. Yes, but it would not affect my opinion as to the contributing causes of expense to repairs of all cars.

Q. It would not affect your percentages, but it would necessarily affect the average that you produce from those percentages, would it not?

A. It might be a little different, it probably would be a little different, a little higher or lower. It might be a great deal higher.

Q. It would necessarily vary from a percentage brought about by being applied to only twenty-eight cars?

A. Well, I don't say it would necessarily do it, but it would
972 probably be a little different, although I think these are fairly representative of the character of repairs of the different kinds on all cars.

Q. This particular car is a wood underframe box car?

A. Yes, sir.

Q. How do the repairs on such a car as that compare with a modern up-to-date steel car?

A. It probably would be a little more. That is clearly reflected on the summary showing the twenty-eight, and for that reason I selected two wooden cars, two steel underframe, two coal cars, and a flat car, so that there would be one or two of each kind in most common use. The steel cars would probably cost a little less for repairs, for two reasons: The principal reason is because they are newer cars.

Q. The element of depreciation would enter there, would it not?

A. Well, the depreciation and the "survival of the fittest." As a rule, wooden cars are not of as great capacity as the steel underframe cars, and in addition to that they are older, so that in heavy train service they suffer more from use.

The single sample or distribution attaching, Judge, was only to show the form of the division.

Q. Do these classes of cars that you have analyzed in Exhibit No. 43 represent all of the classes of cars which the Frisco owns?

973 A. In a general way, yes, although they have some special cars which they own, I think, such as refrigerator cars, but they are very few in number, compared to their others.

Mr. Moore: I will correct you, Mr. Symons. They don't own any refrigerator cars.

Mr. Hill:

Q. While we are speaking of refrigerator cars, that reminds me that it uses a great number of refrigerator cars that it gets from other lines: How have you taken care of repairs on such cars as that, fruit cars, for instance?

A. The fruit cars are all practically private ownership.

Q. Does not the Frisco have to pay any part of the repairs that occur on its own line?

A. No, sir, they pay an amount per mile for their use.

Q. What is that?

A. No, they pay an amount per mile for their use, which is intended to offset repairs, but it is an arbitrary figure, three-fourths of a cent a mile is customary.

Q. If a car becomes out of repair on the Frisco line they repair it and send it on to the other line?

A. If they damaged it.

Q. Whether they did it or somebody else did it they have to fix it up before they can send it on, don't they?

974 Mr. Moore: Mr. Hamilton says that is not correct. The witness is not acquainted with these local conditions. (To the witness) Do you know anything about the local conditions on the Frisco?

A. I know how the private cars are handled on all roads. I don't know as to their division for refrigerator cars.

Q. Do you know what arrangement the Frisco has in regard to repairing that class of cars that are used on its line?

A. They are generally covered by the M. C. B. rules. If it is an owner's defect they card the car. If it is a delivering line company's defect they may card it, and if it is necessary for safety before movement they repair it.

Mr. Hill:

Q. Have you taken that into consideration in making up these tables here?

—. ——.

Mr. Moore:

Q. Who pays for that repair item?

A. If it is an owner's defect the owner pays for it, and if it is caused by the handling company they are supposed to repair it; and then they pay the owners of the refrigerator cars three-quarters of a cent per mile; most of them pay for the use of the cars—that is, loaded and empty.

Mr. Hill:

Q. Have you taken that into consideration in estimating the tables here, the repairs of the special equipment as well as the repairs of the company's own cars?

A. Only as it is reflected in their general repair accounts.

975 Q. You have taken the general repair accounts, which include the money which they have spent for special equipment, for injuries occurring on the Frisco road, and divided that just as you have the other cars of the Frisco system?

A. I have in a lump sum, yes, and the figures are as follows——

Q. The same thing is true of cars interchanged with the Rock Island on the Frisco road, we will say; you handle that the same way, I presume?

A. That does not cut any figure.

Q. Why not?

A. Because the cars of the country are turned loose; they are in a pool, and the money that is spent on all the cars in general constitutes the cost of car repairs of a railroad.

Q. Sort of a clearing house between the roads, you mean?

A. Yes, and then they bill each other——

Q. Yes, but before you get to that point of the clearing house:

Suppose a Rock Island car would be damaged on the Frisco tracks, the Frisco would repair that just the same?

A. Yes, except in some cases they send them home for repairs.

Q. Yes, but I am speaking of the ordinary run: They would repair it and that would go into their expense account?

976 A. If it went home the Rock Island repaired it, and if the Frisco was at fault they would bill them, and it goes into car repairs.

Q. Then the question between the companies as to who takes care of it——

A. They are taken care of at the time being, as a rule.

Q. But the expense of repairing that Rock Island car is an item that would enter into the general maintenance expenses of the Frisco?

A. Yes, and the Rock Island would stand a similar expense for the Frisco, so it is about even, except where a road would be a delivering line as against a gathering line; then the number of cars would be unequal.

Q. It makes a lot of difference about being even if they are overstocked or understocked as to cars, does it not?

Mr. Moore: Counsel for plaintiff states that in the examination of this witness as to the practice of the Frisco Railroad Company in regard to the expense of repairs of cars of other lines which may be used on its line, the defendant makes the witness its own witness; that it is not proper cross-examination as the plaintiff did not go into the subject in the examination in chief, and the witness is not familiar with the practice of the Frisco Railroad Company in regard to those matters.

Mr. Hill: I think it is a very proper examination.

Mr. Moore: It is not cross-examination.

977 Mr. Hill: I am trying to find out how he has located these freight car repairs.

Q. I see this table Exhibit No. 43, is made up of four roads, the Santa Fe, The Rock Island, the Frisco and the M. K. & T.?

A. Yes, sir.

Q. You have it before you, have you?

A. Yes, sir. I think it is freight cars, is it not?

Q. Now take the Frisco first item: You have for terminal 76%—I will drop the fractions; the M. K. & T. for the same item, terminal, 78%; the Rock Island for the same item, 72%, and the Santa Fe for the same item 75%: How do you account for that difference between these four roads?

A. That, I think, is rather easily explained: This is not a table of theoretic values of contributing causes as is used by many in subdividing the expenses of car repairs, principally Wellington, and others of that class. It is a statement of the actual expenses to certain cars, and the cars in question received repairs to the parts needing repairs most, or that was essential to put them in good physical condition, and the division between line and terminal expense on a percentage basis, as shown on the sample sheet attached, would result in making the division a little high, or the cost a little higher to terminal

978 in a car that had received renewals of parts largely chargeable to terminal expenses, as against one in which the renewals or repairs are largely chargeable to the line, as, for instance, wheels are almost wholly chargeable to line, while draft gear and sills are largely chargeable to terminal as the result of switching or rough treatment.

These cars received the repairs they needed that were essential to put them in good physical condition. The bills were made up, and applying these percentages without any partiality at all, equally on all, gives the result shown. It clearly reflects the character of repairs the different cars receive.

Q. Did you take one car from each of those four lines and that car of the same class?

A. Yes, sir.

Q. Did you know where any of the injuries occurred which caused the particular repair that was being made?

A. You mean the location on the road?

A. I mean derailments, collisions, switching in the yard: Did you know the history of the injury to any one of those four cars?

A. No, I did not follow these particular cars.

Q. You just found four cars that had received treatment in the hospital, so to speak, and you took the expenses of that treatment and applied it to the various parts of the body according to the percentages that you thought belonged to line and terminal?

A. Instead of taking a theoretic car or a hypothetical case,
979 I asked the roads in interest to give me examples of certain numbers of cars of each kind that they had repaired, showing the cost in total, separating them as far as possible as between the different parts of the car which I have enumerated on this sample—wheels, axles, springs, trucks, bolsters, and so forth—and these are the figures which they furnished me. They gave me the exact duplicate of the expense item.

Q. You just took the——

Mr. Moore: Let him answer the question.

Mr. Hill: He had finished.

Q. You just took the bill that they gave you for the particular item of expense and then applied your percentage to it?

A. Yes, sir.

Q. That is all?

A. Yes, sir.

Q. You knew nothing about those cars or of those injuries, whether they occurred in collision——

A. No, sir.

Q. Why not?

A. Because they would not take just that specific number of cars and damage them in collisions, and send me the bills, because I told them I wanted a fair representative bill of cars ordinarily repaired as they come into their shops.

Q. I agree with you that those gentlemen would not do
980 that, but I am not getting to that point. I am getting to this point: If those four bills were presented to you without any

knowledge of where they came from could you tell by an analysis of them whether the injuries had occurred in a collision, or derailment, or in the yard?

A. Almost, yes, because if they all had been damaged in collisions they would have had to have new sills. Where the wearing out of cars required other parts that is clearly reflected in here, where worn out as against those that were renewed on account of damage or rough treatment. So that a glance at a bill by any man that is familiar with the anatomy of a car, and who has knowledge of what makes repairs necessary, will enable him to tell pretty clearly about how it happened.

Q. Could you tell whether it was a derailment on the line or in the yards?

A. Oh, no, not that, but you could tell whether it was just a derailment or a collision, or whether it was just ordinary renewals or repairs resulting from average service.

Q. If you saw a lot of bills there that indicated to your mind that those cars had been injured by collision, could you tell whether that collision had occurred in the switching yards or on the line?

A. No, sir, but I would have sent the bills back and told them I wanted representative cars rather than those damaged in a collision. I would not have used them.

Q. I am not speaking of these particular cars, but of the general proposition: You couldn't tell?

981 A. Nor anybody else.

Q. Suppose two trains of cars had a head on collision, both trains were ditched, the cars were destroyed and burned up—well, I will not say burned up, but all badly injured: They were all sent in for repairs: How would you classify that as between line and terminal?

A. Well, the most of collisions between stations if divided separately would be a line charge. If it occurred in the yard it might be a terminal charge, because they sometimes collide when they are switching, they sometimes get together in either service.

Q. In your formula have you in any way taken care of the injuries to cars resulting from collisions?

A. Not as a separate item. I know that it is in the cost of car repairs.

Q. You know that item is there?

A. Yes, sir.

Q. I presume it is a very considerable item?

A. No. I don't think it is a considerable item, although it is an item and it is there; there is no disputing that, but it is slight compared with the cost of repairs, and insignificant when it comes to the cost of maintenance.

Q. But whether it is big or little it is there?

A. Yes, sir.

Q. And it is not in any specific way provided for in your formula?

A. Not set out separate to itself.

982 Q. The same is true of derailments, injuries resulting from derailments, is it not?

A. Yes, that all goes in car repairs because it necessitates repairs.

Q. You have not worked out any way to find out or get a table that would take care of the place of the injury, have you?

A. Of the location or the point of injury?

Q. Yes, whether the place of the injury is in terminal work or whether it is in line work.

A. No, not separately, except my general knowledge as to about what proportion of them would happen, or my knowledge of what chances there are for those happening at two different places——

Q. Those are variable according to the different roads, are they not?

A. With double track roads most of their collisions are in the yards, while with the single track road they sometimes have them between stations.

Q. Yes, I have known one or two between stations in my lifetime. The roadbed makes a great difference as to the derailments, too, does it not? A strong well built road, well ballasted, will not have the derailments that a poorly constructed road will have, will it?

A. Yes and no. That would be answered with some qualification, Judge, for the reason that if you take what is called branch
983 lines, as a rule the rails are set with what we call even joints, so even if the joints are a little low the car settles down and rises up evenly, while in the main lines they use pretty much altogether in maintenance what is called broken joints. If in a poor state of repair broken joints cause cars to roll. So that a branch line, even if not up to the high standard of the main line, is less liable to cause derailments because the cars don't get to rolling.

Q. I was not thinking of the branch line, but I think you are right about that. I have in mind a particular piece of track which will illustrate my point: A few years ago it was strewn with wrecks of freight cars and the company spent a lot of money on it and now have a first class roadbed on it, so I don't think they have the wrecks now: Was not the condition of that track the principal contributing cause to all those derailments and wrecked freight trains, as well as some passenger trains?

A. I would have to answer that with some qualification, because if they had run slow enough they would not have been derailed even with the bad track, so it is a combination of track conditions and speed.

Q. They all get the speed even if the track is not right.

A. They probably try to run a little too fast for that particular kind of track. They could have avoided any derailments if they had gone slow enough.

Q. If they had gone two or three miles an hour they would
984 have escaped?

A. I should say twelve or fifteen miles. I don't know the particular track. You know it better than I do.

Q. The point is you have not attempted to locate these injuries by taking the various causes like derailments, low joints, and various things of that kind that you know about and I don't know about, you have made no classification of the injuries upon those bases?

A. I have not picked out that item and set it out separately for the reason that the roads don't have it separate. I had it in my mind in considering the proposition all the way through.

Q. That gets back to the opinion proposition——

A. Yes, sir. As I understand it this study is to contain or be based upon ascertainable facts as far as possible, and beyond that that expert opinion will be accepted, and I have secured all the ascertainable facts I could, and in the car summary which we were just discussing I think I have given you twenty-eight cars more than most experts or authorities give, as most of them base it upon what we call a hypothetical case or a theoretic car, while I got twenty-eight specific cars and showed the exact cost of repairing them, and subdivided it between line and terminal.

Q. In your Exhibit No. 48, I think it is, the local freight trains and through freight trains, you reduce the number of re-
985 pairs to the engines for each: How did you know those particular engines were on local trains and upon through trains? Was that some of the information you called for when these bills were submitted to you?

A. This does not represent any particular engine, it represents the service of handling the local or through train regardless of the individual engine. You have to have an engine to handle it. That is the service we get out of the engine, and that is my expert opinion of the contributing causes regardless of the number of the engine, its class, type, weight or anything else.

Q. This table is not based like the one we have just been examining——

A. Oh, no. If you will permit me, I explained in my opening remarks that in the case of locomotives we did not have the cost of the individual engine and that we took the average cost in the United States, which is shown down in the left hand corner as $2,541.

Q. You have taken the theoretic engine in this particular case?

A. And applied the actual money.

Q. Applied the actual money and the theoretic engine and applied your percentage to it?

A. Yes, sir.

Q. In the other case you took twenty-eight cars instead of the theoretic car?

A. You are correct, sir.

986 Q. Taking that theoretic engine you assume if it were in local service it would be divided as you have set forth here; if it were in through service it would be divided as set forth there.

A. Yes, and I know that there are engines in both services, and then I made my average on the supposition that there were at least between four and five more doing what is called through service than those that are doing local service. That would be a little high on some roads and a little low on others, but I think it would make a fair average.

Q. Suppose that that theoretic engine pulled a local train six months and a through train six months.

A. Then the other six months another engine would pull the local train, so it would obtain throughout the year, unless they abandoned the local train. If they did it would apply to any place where they kept the local trains running the year around.

Q. There is some regularity about the running of local trains, but no regularity about the running of through trains, is not that correct?

A. I think that the regularity of freight trains would govern about in equal number in through freight to those that are on local freight, but beyond that there is what is called overflow business that is moved with extra trains. That is irregular. That
987 depends upon the size of the road and the volume or density of traffic. Where traffic is light that would be through; where it is very heavy there is more regularity to some of their through trains than there is to the local, so I don't believe any fixed rule could be established.

Q. I have been told by gentlemen who are supposed to know, that under ideal conditions they never run a freight train unless there is a load for it.

A. That is correct.

Q. Is that your theory, that is correct, is it?

A. That is correct, manifestly so.

Mr. Moore:

Q. You mean as to both local and through, or only through?

A. Through trains. Local trains run every day, but on a road doing any considerable volume of business the through trains are just as regular as passenger trains; they go every day, and with certain classes of commodities they are given the preference over the local trains.

Mr. Hill:

Q. It depends upon the volume of business whether those trains run at all or not, does it not?

A. Well, yes, but with a road of any considerable size there is enough volume to always run a portion of them, and then with an extremely heavy business, of course, that is augmented, materially increased.

Q. The point I am reaching is the class of repairs to be attributed to that engine for a year's work, one-half of which is in
988 local service and one-half in through service: I see your percentages vary considerably.

A. Yes, between local and through.

Q. Is that variance on account of the difference in the character of engine, or on account of the difference in the character of service, or both?

A. It is a little of both.

Q. Explain that, please, I would like to understand that.

A. Well, in local freight service, particularly those that go out on branches extending from the main line, as a rule the superstructure is a little lighter than on the main line, but even on the

main line the local freight engine, as a rule, is a little lighter in weight so as to be suitable for use in industry tracks that the heavier engine could not get into.

Q. Is it not also a little older as to age?

A. Generally so, and that explains why it is a little lighter, as the heavier engines are put into service on the main line and the other engines are used for the lighter service. That, again, with its excess switching or station work in excess of what the through engine would perform accounts for the difference between line and terminal repairs. In other words, the local engine is largely worn out switching and has more of it as a contributing cause, while the through freight engine is more largely worn out in train
989 movement, road running, hauling trains.

Q. Have you taken into consideration that this old engine has been worn out in through service, or partially worn out in through service, before it is put into local service, in dividing your repairs between the two?

A. I have taken into consideration, Judge Hill, its size and weight, but not its age and being worn out, because I don't assume that it is worn out. I assume that its state of repair is such that it is a hundred per cent engine all the time, so far as service is concerned.

Q. And as to the per cent of repairs——

A. It probably costs a little more when it is twelve or fourteen years old than it did when it was two or three years old, but it does not cost as much per engine per year as the large engine on the main line, because it is less expensive in the first cost, and there is a less number of parts to wear out.

Q. It would cost proportionately more than the big engine?

A. If figured on a basis of its size tractive power or weight on drivers, probably a little more, depending a little upon the state or period at which it received repairs. There are certain period- at which engines require renewals of expensive parts, and a locomotive that is twenty years old as a rule has had such renewals that it is probably in a little better condition than one that is only
990 fourteen or fifteen years old, although certain parts of it may be approaching their limit of life.

Q. You spoke about the difference in the equipment in the time of Wellington and later period as compared with present day equipment.

A. Yes, sir.

Q. The equipment of the present day is very different from what it was five or six years ago, isn't it?

A. No, sir, I would not say it was as to five or six years ago. I should say there was a marked difference between now and fifteen years ago, but our heavier engines which are termed the Mikado and Consolidation type used in freight, and the Pacific type used in passenger, have been in use ten or twelve years, and some longer than that.

Q. I made my question broader than engines, I said equipment.

A. Equipment?

Q. Yes.

A. Oh, cars. I would make almost the same answer to that. We went into steel car construction some ten or twelve years ago and the number built has increased very fast for the last seven or eight years.

Q. Mr. Symons, I will assume for the purpose of this question that there were some steel cars, both passenger and freight, in 1908, but that the number of them since that time has materially in-
991 creased in proportion to the other equipment: I will ask you if that would have any effect upon the distribution you have made in these exhibits to the percentages applied to the various kinds of equipment.

Mr. Moore: The question is objected to because the assumption is not based on any fact in evidence in this case.

(Previous question read.)

A. Practically, no. In the freight summary I have taken into account the addition of the steel cars, and I have had in mind in all of the work and my studies the presence of the steel passenger coach, and while it when new probably requires a little less repairs in a given period than a wooden car, yet ultimately it would be about the same, and the division between line and terminal I think would be approximately the same.

Q. Suppose for illustration that there were no steel cars on the Frisco road in 1907, and since 1907 there has been a large number of splendid steel coaches placed on the road: Would that affect your table of distribution?

A. It would not affect the percentages assigned to line and terminal, but it would affect the amount expended. The amount would be less if there had been a number of them put into service because of the newness, and also because of the fact that some parts of a steel car will last longer than a corresponding part of a wooden car, but its ultimate renewal probably would be more, so that I
992 think the final expense would be about the same, although it would be distributed over a greater number of years.

Q. Taking it as a proposition for the future your table would be sound?

A. I think so, so far as steel and wooden cars are concerned. I think the differential between locomotives and cars would in a few years from now perhaps be subject to a little change if the building up of the country requires more local trains, or vice versa. That is a subject to be modified when it is reached.

Q. That is another phase of it. What I am trying to get at now is the situation where your equipment charges are made up, a large part of which would reflect the use of steel coaches——

A. Yes, sir.

Q. —as compared with the period when there were no steel coaches, or very few.

A. Yes, sir.

Q. What would be the effect of your table as compared with the period when there were no steel coaches?

Mr. Moore (to Mr. Hill): You mean the proportion or percentage chargeable to line and terminal?

Mr. Hill: Yes.

The Witness: I think they would be practically the same, but I want to qualify that by saying that if our dear frined Wel-
993 lington could have foreseen the progress he would have made a different table, and I would not want to speak for the future, but as I see it now, the proportion between line and terminal would be the same. The amount would be less for some considerable period.

Mr. Hill:

Q. But you think the cost of repairs to steel cars, as between line and terminal, would be the same as the cost of repairs to the wooden cars, between line and terminal?

A. Yes, I think so, assuming that on the basis that the use is the same.

Q. Just so the same number of trains——

A. And the same number of stops, and the same kind of conditions.

Q. Yes, that is what I am assuming, the same service, just making the difference between steel and wooden cars.

A. The amount would be less, but I think the division between line and terminal would be approximately the same.

Q. What do you mean, the repairs would be less?

A. Yes, the cost per car per year would be a little less. I think steel is a little less expensive to repair, and then it has the advantage of newness, of being new.

Q. How does the cost of labor in 1907 compare with 1913?

A. The cost of labor has been gradually increased somewhat right along, I think, and materials also. I don't think the increases in the last five or six years, however, have been anywhere near as
994 great as they were ten or twelve years ago.

Q. In making up this table, as I understand you, you are treating all the cars in the country as a whole, and you are assuming that these conditions that you are dealing with are common conditions over the United States and not conditions peculiar to the Frisco road in Arkansas, or to the Frisco road in Oklahoma?

A. No, I am not making it that broad. I secured from the roads examples of the cost of their car repairs and made a study of the conditions in the locality, and also brought into requisition my knowledge of the conditions of this country. I was at one time superintendent of motive power of the Kansas City Southern road which runs in this state, and have a pretty general knowledge of the conditions, and had in mind the roads in question, although they compare favorably with the roads over the country, except those that are strictly in mountainous territory, or something of that kind.

Q. How do the conditions in Oklahoma and Arkansas compare in regard to the subjects you are treating?

A. Why, they are generally similar, although Oklahoma is build-

ing up very fast, and in the matter of freight cars there is probably more of what we call the delivering line phase there than in Arkansas—I should think maybe a little, but not enough to affect——

Q. What do you mean by the "delivering line"——

995 A. There is more stuff delivered than there is gathered, it being such a largely agricultural country and many new settlers coming in; many cars going full and come out empty.

Q. Will that affect the tables here?

A. No, sir, that is taken into consideration. That is generally true in the Mississippi Valley, west of the Mississippi River, but more particularly in the southwest.

Q. There is a difference, as you well state, between the flat country and the mountainous country: It costs more to operate a freight car, or engine, or passenger car, across the mountainous country than it does on the plains, I suppose?

A. Well, I would have to qualify that if I said yes or no. The character of the repairs would be a little different. In a mountainous country you have heavy expense for wheels, because the brakes are used more to hold the train, while in a level country they are only used to stop at stations.

Q. Would there be a difference between the mountainous and flat territory in the assignment to line and terminal?

A. I would assign precisely the same that I have here, but there being more wheel renewals in a mountainous country would make a little larger item under that heading, but that automatically takes care of itself. I would not change my percentage at all.

Q. You would not change your percentage for cars whether
996 they went over Boston Mountain or on the river line or low grade?

A. No, sir, I would not change them. The line and terminal, I believe are the same.

By Mr. Moore:

Q. These same individual cars go over the mountains and across the plains, don't they?

A. They go all over the country, Frisco cars in California——

Mr. Hill:

Q. Why would not your percentages apply to the whole country?

A. I think they are fairly good, although I did not make them for the country. I made them for this particular case and this particular locality, but I think they are generally applicable, although, like in the field of law and medicine, there is always a difference of opinion.

Q. We have discovered some differences of opinion here between you doctors on the questions here——

A. Yes, sir.

Q. You and the General Managers do not seem to agree, and probably we have some doctors that do not agree.

I do not know whether I understood exactly your definition of

line and terminal as you have applied it in your formulas: I wish you would repeat your idea of that distinction.

A. Line work consists of making up, breaking up and making up trains, taking cars from foreign lines at intersecting points,
997 and such stops as may be necessary to the line movement of the train, which would include stops for water, railroad crossings, coal and meeting trains incident to train operation, while terminal work would consist of switching at terminals. It covers "the unloading, delivery and other outlay incident to the disposition of the traffic at delivering or terminal station. Any service incident thereto and any expense incurred in connection therewith constitutes a terminal expense." I am reading from the formula.

Q. From what page?

A. Page 2.

Q. Let us apply that a little.

A. That would include placing cars at industry tracks, and placing them to the warehouse for loading or unloading.

Q. You are familiar with the movement of cotton and how it is handled, are you not?

A. Well, in a general way, not at all as a cotton specialist.

Q. I will take this as an illustration: Say there is a train load of cotton—I don't think that usually happens, it comes in in a few cars, but for illustration, say there is a train of thirty cars of cotton moved into a given point and there delivered to a compress; there is a large compress there, and later it is taken out of that compress and put into another train with probably half the number of cars that one has and carried on east: Would you count as line
998 or terminal that service of delivering that cotton to the compress, taking it away from the compress, and reshipping it?

A. I would call it terminal because you don't know how long it will stay there. They load it at one point and take it to a compress and unload it. That is an operation, it is a specific operation. It is the terminal of that car so far as conveying that particular cargo is concerned. You don't know whether that car will be held to receive that cotton or sent somewhere else for potatoes, or what will happen to it. But when that cotton is compressed cars are ordered to handle it. That is a terminal charge to set in the cars, and when it is taken to the next place where it is unloaded that is a terminal charge, but hauling it between those two points is a line charge, it is a train movement.

Q. Assume that a car of cotton was picked up at Arkinda on the southwestern line of the Frisco and carried to Ashdown and there compressed—I don't know whether there is a compress there or not, but use that as an illustration—it is picked up there later and carried on to Hope and delivered by the Frisco to the Iron Mountain at Hope, and from there shipped on east: How many terminal movements would you count that cotton to have received?

A. If setting the car out at Ashdown was necessary in rail-
999 way operation in order to reduce it or increase it and combine the train, it would be a line charge. If it were not and it

was set out and stopped, if that road's duty ended there in delivering that car, it would be a terminal charge, and there would be——

Q. I am assuming that is on the same road. They are taken into a compress point and afterwards another train made up. That is the usual way, as I understand it, and I assume you know that is correct, do you not?

A. Yes, sir.

Q. Assuming that the load of cotton came from Arkinda, was taken to Ashdown, taken out of the cars there and delivered to the compress, probably stayed there a day or two, or a week or two, or some length of time, and then delivered again to that same Frisco road, carried on to Hope, and at Hope delivered to the connecting carrier: How many terminal expenses would be attaching to that on the Frisco road?

A. I would say it was a terminal expense, a terminal operation—no, it would be a line charge, setting the car in to get the cotton.

Q. At the compress?

A. At the original point of loading.

Q. You would consider that line at the original point, would you?

A. Yes, sir.

Q. Picked up at a gin there, you would consider that line?

1000 (Previous questions read.)

A. Loaded at Arkinda, is that on the Frisco road?

Q. Yes.

A. And Ashdown?

Q. I assume those are all on the Frisco. And carried from there still further east to Hope, there delivered to the Iron Mountain, the connecting carrier, and shipped by it.

A. At Hope? That would be three movements.

Q. Would it not be four?

A. Yes, sir.

Q. You would consider each of those a terminal movement in your classification between line and terminal?

A. I would consider them terminal, yes.

Q. Each of those four?

A. Yes.

Q. There is a great deal of lumber that is shipped somewhat similarly from a point out in the woods on a lumber road or a branch road, and carried in on what they call the rough material rate to a milling point, there dressed into lumber, and reshipped under the same rates. I presume you are familiar, generally speaking, with those movements without my going into detail?

A. Yes, sir.

Q. How would you count those various movements originating at the end of a line as logs, carried to another station, there de-
1001 livered to a mill and a certain percentage of it delivered back to you as lumber, and then carried on: How many terminal movements would you count on that?

A. I would count it a terminal charge to set the car in and get the business, and to take it somewhere else and deliver it.

Q. In that particular instance there would be three terminals, would there not? Where you picked up your logs would be one, would it not?

A. Yes, sir.

Q. Then when you delivered it to the saw-mill to be changed from logs into lumber——

A. Yes, sir.

Q. —and then when you picked it up as lumber and carried it on to its destination that would be a third terminal, would it not?

A. Yes, sir.

Q. And you so considered it in your assignment?

Mr. Moore (to Mr. Hill): You are excluding the destination?

Mr. Hill:

Q. If the destination was in this state—I did not have in mind that that would be in this state: Of course, if it was in this state it would be a fourth terminal like cotton. Generally speaking, on lumber, that terminal would be without the state, would it not?

A. It probably would, yes. I have figured that in.

Q. In what way?

1002 A. I have estimated that that amounted to about 10%, roughly speaking, of the cost of car repairs.

Q. There is another large movement in this state, and I presume a larger one in Oklahoma, of grain that receives a milling-in-transit rate, that has a similar movement to these I have just instanced of cotton and lumber, where the grain would move, say in Arkansas, from some of the northwestern states, originating off the line and it would be received here at some point in Arkansas, delivered to a mill, there milled, redelivered to the Railroad Company in its milled form, then carried to some way station and delivered to the customer: You would consider here in this state three terminal movements on that?

A. I would consider a terminal charge wherever it originated and where you delivered it, for the reason if you do not reload it and ship it on, and the fact that you do change it in character by milling it, or if you don't mill it, does not change the fact that it started at one point and was brought over and delivered—no one knows whether it will go forward or not; it may be the intention to take it, and they usually do——

Q. And each of those deliveries and picking up would be a terminal charge within the meaning of your formula?

A. That is a terminal charge.

Q. In these twenty-eight cars that you examined you called for representative cars, and we will assume unquestionably that

1003 the railroad gave you what they thought were representative cars, but you couldn't tell, and I don't presume the gentleman who furnished you the bills could tell, whether those particular injuries for which those expense accounts were paid occurred in line or terminal work.

A. I don't think anybody knows as to the individual car whether

the final injury was in the yard, on the line, or where, but they are a fair representative of car repairs.

Q. You were telling us this morning about your experiments on the Southern Pacific to find out the trouble with those cars that would not operate as they should have operated: Did you find any of that trouble due to track conditions, or was the trouble all due to the construction of the cars?

A. It was a combination of some fault in the track, and the car's design was not what might be called faulty, but it was of a character that was not best suited for that particular track, which was very crooked. The cars behaved much better when they were on straight track.

Q. Cars usually do, don't they?

A. Well, yes, although certain designs favor crooked track, while other designs are less adaptable to the crooked track.

Q. The condition of the track is a contributing cause to the injury to the cars and locomotives, too, is it not?

A. In connection with speed, yes, but I would qualify it
1004 by saying that it is in connection with speed.

Q. What consideration have you given to track conditions as affecting this equation before you of line and terminal?

A. I have considered that track is all about the same only that some is just a little better than others, and I also know that the general average of track is pretty much the same, with rare exceptions. I also know that in operating, operating officials usually run their trains slower where the track may be under repair and the surface or alignment is temporarily out until such time as it is brought up to a good surface. I also know that engineers in handling trains, for their own personal safety, if nothing more, as a rule are careful in their movement where there are spots of bad track, so that from that and my general observation over the country—my work taking in the east and west—I think it is fair to assume that the track conditions are about on an average.

Q. That is another way of saying that you have assumed the track conditions to be the same and ignored them in this equation, is it not?

A. No, sir; they are not ignored at all, because in this equation I have reached the conclusion that the repairs of freight cars is 35% and 65% to line and terminal, and that includes every possible element that I know of that in any way can be used as a contributing
cause. A rough track causes hot boxes; hot boxes cause hot
1005 journals, sometimes, broken wheels. A journal gets hot, sometimes it gets so warm that it heats the wheel, and as the result of the internal strain, unequal stress set up in the plate, the wheel will crack. The constant application of brakes will cause that in connection with rough track, if the track is rough, or the constant application of brakes where the track is smooth. All those things are contributing causes making necessary the repairs of cars or the renewal of parts, and I have in mind every possible element known to me as the result of my twenty years of experience in designing,

building, buying, operating and maintaining cars, that would enter into that expense.

Q. Suppose this hot box caused by a faulty track has brought about all these consequent conditions that you have spoken of: How do you distribute that between line and terminal?

A. I distribute it precisely as shown on my report, 35% and 65%, no matter what brings it about. That is what it costs.

Q. Irrespective of whether it was brought about by bad track or some other cause?

A. There is very little brought about by a bad track, but I know that defective track has a little something to do with equipment, more with locomotives, probably, than cars, although it affects cars; it is hard on the springs, but the loading of cars is harder on springs than the track, particularly with open cars. People drop things on them.

1006 Q. How do you divide that?

A. It is all in my division.

Q. You had a picture this morning of some freight cars that were smashed up by bad loading, the shifting of a load of lumber: How do you divide that injury between line and terminal?

A. Well, if it happened out on the line between stations, for instance, if an engineer in rounding a curve came to where there was a washout or cattle on the track, or another train that was not properly flagged—in other words, he was suddenly apprised of this danger, he might set his brakes and reverse his engine so as to cause an unusual shock, and result in damage of that kind to some of the cars. I know those things occur.

Q. How have you taken care of such instances as that in your formula?

A. I take care of them all over the country just the same, regardless of the name of the road, or where there is a percentage of accidents due to that sort of thing, but as I have previously stated, it would be so small that it would be hard to set it up by itself and show just what it is, and I have not set it apart, but I have it in mind.

Q. You recognize it as one of the conditions that produce this. Suppose those lumber cars were damaged by the defective loading in a terminal; the man that handled them did not load them properly, but the injury occurred out on the line: How are you going to divide that?

1007 A. I don't see how you would find out the loading was defective——

Q. You know that to be a fact, don't you?

A. If it happened on the line we would call it a line charge for the reason that all cars going out of a terminal are supposed to be passed on as acceptable for line service, for movement in the train.

Q. Is it not a fact that a great many cars are improperly loaded in terminals? that cause injury after they get in motion?

A. No, it is not, but it is a fact that in switching and rough treatment around terminals the loading becomes in a dangerous situation or condition. I don't mean by that that none are improperly loaded, but the number that are improperly loaded compared with those

that are correctly loaded is so small that it would be hard to differentiate.

Q. Take that lumber that had been properly loaded in the terminal and the injury occurs on the road: That would be line——

A. Yes, because it is so small and it is so hard to determine that I don't think it would be possible to differentiate and set it out by itself. Another thing, when the accident occurs on the line the evidence of the improper loading is usually destroyed; it is not there. You cannot locate it, you can only assume that it was improperly loaded. You know it was supposed to be properly loaded, but it is an assumption to assume it was improperly loaded.

1008 Q. Take the other item you have just mentioned, which I take it from your statement is a fact, that loads have been shifted around at terminals by improper switching, and the injury to them occurs on the road——

A. I have subdivided that between line and terminal, and I have also repeatedly stated that the original primary subdivision as between normal wear and tear and rough handling in switching, that I believe about 10% of the cost of car repairs occurs in making up or breaking up of trains chargeable to line service, and all of the elements contributing to that—every one of them of whatsoever character—are embodied in the cost of repairs.

Q. I don't think you understood me.

Mr. Moore:

Q. That referred to rough handling?

A. Yes, rough handling in line work.

Mr. Moore: Your answer was a little broader than that.

Mr. Hill:

Q. I am taking just the reverse of that proposition, you probably did not understand me. In your Exhibit No. 43 you have "10.7% for terminal charges account switching at terminals or stations properly chargeable to line:" Now it is the other proposition that I am inquiring about: That improper or rough handling in terminals, where the injury occurs on the line, where is that taken care of? In other words, where the cause is in the terminal and the effect is on the line. You have taken care of the other proposi-

1009 tion by this 10%, but I want to know where you have taken care of that.

A. In what cases?

Q. Well, say the improper balancing of a load by switching in terminals, rough handling in terminals, and that causes an accident out on the road.

Mr. Moore: That is not the sense in which he uses the words "rough handling."

Mr. Hill: I think it is from the way he answered me before.

Q. Do you understand my question?

A. I thought you had some more to say. Are you waiting on me?

Q. Yes. (Previous question read.)

A. I have taken care of this in the very same way, it is already taken care of.

Q. Where?

A. In the 10%.

Q. Then I don't understand that 10%.

A. I can't help that, Judge. It is there and taken care of.

Q. This 10%, as you state it here (indicating Exhibit No. 43) is "for terminal charges account switching at terminals or stations properly chargeable to line."

A. Yes, sir.

Q. I want to know if there is not a lot of line expense
1010 in an injury occurring on the line, where it originated in the terminal, that is not included in this; it is just the reverse of this proposition?

A. I think I can make that a little clearer, maybe, but it won't be any material change from what I have already said.

In the first place, all damage to trains in train movement on the line has been charged to line and is considered in line charges. The question of whether the car was improperly loaded or not at the terminal, or whether it had been shifted by rough switching, has not entered into the calculation except so far as my knowledge is concerned that such things do exist in a very limited way, but it would only show that the car inspectors or trainmen had been derelict in their duty in letting the car go out of the yard in an improper condition, and those cases are so very rare that I confess I would not know how to take them out and attempt to separate them and express them in dollars and cents or percentages. But having in mind every character of repairs or damages resulting in repairs, I have assumed that 10% of car repairs from rough handling is caused in line work, and have subtracted that amount from the total and added it to the terminal, and in that is included every known element or contributing cause to car repairs or expense.

How to subdivide that one specific item you speak of, or to
1011 locate it, particularly in face of the fact that the evidence is always removed in cases of accident, I confess would be a little too deep a problem.

At this point adjournment was had until Thursday, October 29, 1914, at 9:30 o'clock in the forenoon.

1012 LITTLE ROCK, ARK., October 29, 1914.

Met pursuant to adjournment as above on Thursday, October 29, 1914, at 9:30 o'clock A. M.

The following proceedings were had:

Redirect examination of Mr. Wilson E. Symons.

By Mr. Moore:

Q. Mr. Symons, Judge Hill's cross-examination was based largely on Mr. Wellington's formula as published in his book: Will you state the principal difference in that formula and the formula used by you in your testimony in this case?

A. I cannot state definitely or even in a general way exactly what Mr. Wellington had in mind, or all the purposes for which he may have contemplated his formula would have application. I can state, however, that it is not predicated upon, nor does it make a division of repairs as between line and terminal, or the class of service in which the equipment is engaged. It covers, in a general way, the normal wear of cars, regardless of the service therein; and, therefore, does not make any division based or predicated upon the same grounds on which I have made my formula and division, which is on service conditions as between line and terminal.

Q. You say Mr. Wellington's formula seems to be designed to take the wear and tear on cars, and his assignment seems to be as between the different component parts of the car itself: That is true, is it not?

A. Yes, sir, it is confined to that. While my formula or method of analysis is based upon the service rather than the com-
1013 ponent parts for the average life of a car. It subdivides the cost of repairs, in my formula, on service to which the car is assigned, or is in at the time the repairs are made necessary by reason of that service or its treatment in that service.

Q. Mr. Wellington's formula has no reference whatever to the use to which the car is put or the service in which it is employed, has it?

A. It has none whatever. The methods employed by Mr. Wellington and myself are so wholly different that they are not comparable in any way at all.

I don't know, as previously stated, all of the things he may have had in mind, but I do know he did not have in mind, and did not prepare a formula predicated upon, the uses of the car in the respective services of line and terminal, which I have done.

Q. I see you have gone into greater detail in your division of the different parts of the car which are affected by the service than Mr. Wellington did. I suppose your purpose in doing that was to enable you to assign the repair cost in accordance with the use of the car in the service in which the injury occurred: Am I correct in that?

A. Yes, sir, you are correct in that. I felt very sure from my rather extended experience and observation of the causes of car repairs, regardless of the age or physical condition of the car, that a more extended subdivision should be made of the parts than
1014 I have seen in any other formula used by anyone else. Therefore, I extended my subdivision to eleven items—or twelve including miscellaneous; by which subdivisions I am able to set up and apart some of the most essential parts of a car, that other persons in making similar investigations have combined together.

As an illustration, the term "car body" may in a general way cover everything from the trucks to the roof. But I considered it quite proper and important that there should be a subdivision made, and I have made it on the following order:

I first take draft gears and draft bars, which are practically one essential part of a car.

I then set apart sills.

Then the term "car body," of course, would be confined to that portion of the car above the sills and between the roof and sills; for in the next item I have the roof separately. So all three of those, or all four of them, can be treated as separate and independent items.

This is for the reason that in my observation a car is damaged either by rough handling or the wear occurring from normal service and sometimes certain parts are badly damaged while others may not be so seriously injured. I, therefore, make this separation.

I then separate "painting," which some authorities include in "carbody." So that each of the items may stand out inde-
1015 pendent and unto itself.

Another reason for that is this: That some of these parts have a normal life that would be affected more by rough treatment than others. For instance, the rough treatment of a car does not seriously affect the painting. But when as a result of rough treatment or other causes the car is repaired to any extent—that is, the car body—it is necessary to paint it, or that portion of it which has been renewed, in order that the exterior may be uniform in color.

For these reasons I have made a further subdivision in the essential parts of a car than Mr. Wellington, or any other authority with which I am familiar. And this also leads me to believe that those who use the less number, or smaller division, usually have in mind the normal life of a car and its wear from normal use, as assigned to the various parts that wear from normal service, rather than making a division of expenses necessary in making repairs, as between line and terminal—which, properly defined, means service, or the service conditions in which the car is being used.

Q. Isn't it a fact that the liability of the various parts of the car to injury depends, to some extent, upon the particular work it is doing, or the service it is engaged in at the *same*? For instance, if you find the wheels are injured, the curvature of the track may enter into that. If you find a wheel broken, that probably resulted from shock or impact—the cars coming together. In view of that,
1016 isn't it true, as I said a moment ago, that the expense to which the different parts of the car are injured depends upon the kind of service it is performing at the time the injury occurs?

A. Yes, that is true. In fact, it is dependent almost wholly, if not altogether, upon that.

As an illustration, we might say that in an ordinary freight train there are cars of various capacities from twenty-five tons or fifty thousand pounds up to fifty tons, or one hundred thousand pounds capacity. The twenty-five ton or fifty thousand pounds capacity may properly be considered in this illustration the lightest car in the train. A car of similar construction, that is, of the same kind of material, of eighty thousand pounds capacity, that had been in service some considerable time and sustained some injury from buffing shocks and rough treatment, which combined with what we might term the effects of age and some slight decay, might in a physical test of endurance resulting from operating or service conditions, entirely fail or be broken in rough switching, while the

lighter car that was newer or just recently out of the shops, would not be damaged under the same conditions.

That brings out the point that the question of repairs as contemplated in this study is one of service conditions and not one which sets apart as a separate item the question of age or decay, for they are involved and taken care of in the costs chargeable to the two respective services.

1017 With reference to the wheels, wheel wear is indicative of the wheel coming in contact with the ball of the rail. On extremely crooked roads the wheel wear is greater than on straight lines. But as cars are generally "pooled" in the United States, Canada and Mexico, the average effect on freight equipment if pretty much the same on the equipment which is used in interchange; and that applies on all except some special types of cars which are kept at home.

The removal of wheels is indicative of mileage. About fifty thousand miles is the life of a wheel, and as freight cars make an average of about eight and one-half to nine thousand miles per year, that converted into years of life represents four and one-half to five years' service. That is largely, if not almost wholly, chargeable to line, regardless of the wear of the wheel or where it has been in service.

I might add that some wheels under cars which have been standing still a great deal of the time might be ten, or twelve, or even fifteen years' old before they are removed; while others under cars moving constantly might be removed in two and one-half years. But in either case it would be principally chargeable to line service.

Q. If you are told that the wheels of a car are damaged, while it is being repaired, it would be in your mind at once the service of those wheels in making mileage in connection with line service. If you were to find the running gear, the wheel or draft gear,

1018 damaged and requiring repairs, you would attribute that probably to some other cause. You would assume that was caused in some other service than simply the mileage made on the line, wouldn't you? And in that way isn't it true that the character of the injury under the divisons you have made of repairs on each component part of the car, is regarded by you in determining the service the car was in at the time the injury was inflicted?

A. Yes, sir. But in answering that question it would be necessary for me to qualify, particularly with respect to the wheels.

Q. State it in your own way.

A. What is generally termed a damaged or injured wheel under a railway car or locomotive, is one that has met with some injury by accidents. While the necessity for removal on account of normal wear on the line, which represents road running and train movement, is evidenced by the wearing away either of the flange, a gradual cutting it away so it is reduced down to a point, rendering it unsafe; or the wearing away of the tread which rests on the rail. Those are the two points wherein a wheel wears: First, the flange; second, the tread.

We would not call that an injury, but we would call that a physical

condition requiring removal and renewal by placing another wheel on that car or locomotive.

As against that, a wheel might in rough switching, or on account of a car being derailed and the wheel striking frogs or
1019 switches or coming in contact with other solid bodies, have a piece broken out—either the flange or the tread, or a section of both. The broken wheel would be indicative of an accident. If it happened in a yard in ordinary switching work it would be chargeable to terminal, unless they were making up or breaking up a train, in which event it would be chargeable to line. If it happened out on the line it would be chargeable to line.

If a wheel happened to wear down to a point which would bring it within the M. C. B. wheel gauge limits, that represents almost wholly mileage on the road, which is a line charge and would not be chargeable to anything else. That would indicate to me very clearly that the car or wheel had made a certain amount of mileage.

The draft gear or sills, when broken, as they usually are when coming in for repairs, invariably indicates rough treatment. The most of that occurs in what we call terminal service. Although similar injuries may be caused in making up or breaking up trains for line service, and it is so provided for in my formula and summary.

Q. You charge 40% of the cost of wheel repairs to terminal and 60% to line service, in your formula: I wish you would state on what basis you made that division.

What I want to get at is this: You did not have any particular wheel before you when you made this division, but you have
1020 had a great deal of experience in designing, repairing and operating cars?

A. Yes, sir.

Q. In dividing that expense between the two kinds of service you had to rely, and any other man would have had to rely, wouldn't he, upon the means of forming an opinion or judgment based upon experience in dealing with the incidents that would produce the necessity for that repair? I think you get the idea I have in my mind. I wish you would explain that with reference to the suggestion I have made.

A. In the normal use of a wheel, if it met with no accident at all, it would be worn out largely on the line, or a percentage of it chargeable to line, in excess of 60%. But a very slight accident in a yard when switching, by rough handling, will chip out a piece of the flange or break a small piece out of the wheel, usually from the flange, which will necessitate the removal of a wheel from under a car that otherwise would run probably two or three years.

It is those small or seemingly small accidents which take a larger percentage out of the life of the wheel than a corresponding length of time would take from it in line service, that leads me to believe that as a safety or precautionary measure there should not be charged to line as much of the life of a wheel as the respective mileage between line and yard would show on a subdivision upon that basis. In other words, the occasional accident in a yard frequently happens to a new wheel that has not run more than a month or two. It
1021 is therefore necessary to remove it and thereby take about 80% of its life or service, scrapping the wheel; while one on

the road would run up to four or five years. The occasional removal of a wheel damaged in a yard, or by terminal switching, would bring that percentage materially down on account of the very small, seemingly, character of the damage which necessitates its removal.

My observation extended over a number of years of examining damaged cars; which has probably covered hundreds of thousand- of cars and it leads me to believe that that is a more conservative condition than any that could be based upon actual mileage, for this is based upon my observation of the physical condition of the wheels necessitating their removal.

Q. You spoke a while ago of the effect of age and the use of cars and their various parts: Isn't it a fact that in assigning the expense of repairs, and in the study that is made for that purpose, the conditions that are brought about by the use and age are simply incidents that enter into and affect its liability to damage, and which is incident to both kinds of service—line and terminal.

For instance, if the parts of a car are practically new and in sound condition they are less liable to injury from impact, or any of the other causes producing injury, than would be the case with an old car that had been used to an extent that would weaken it, and
1022 that increased liability to injury applies to it in any branch of the service in which it may be used, doesn't it?

A. Yes, sir, that follows the car and remains with it everywhere and under all conditions and circumstances. No matter whether it is switching in a large yard, making up and breaking up trains, which is chargeable to line; or whether the switching is being done with respect to industries or in line work on the road by a regular train crew, the question of the failure of a car or its breaking from rough handling is a question of the "survival of the fittest" as between the respective cars in the train, which is composed of various units, of various ownerships, and various agents, built of different kinds of material—namely, wood and steel—and of various capacities. Cars that are approaching a point where they should go in the shop for either light, medium or heavy repairs, are in service along with those which are new, just from the shop or manufacturer. In handling those cars, as a result of the buffing shocks and strain that damage the various essential parts, the car breaks first which is the weakest, regardless of whether that weakness is due to its light capacity or whether it is a car of a little greater capacity, which has been weakened some by age and decay but not to a point yet necessitating its removal from service to go to the shop for repairs.

So that the condition of age and decay, or its physical condition, follows the car everywhere it goes and is a contributing factor
1023 in its failure, no matter whether it fails in line or in terminal service. The character of the service has nothing to do with it at all. It is a question of its resisting power, or its relative resisting power, in comparison with other units with which it comes in contact. My analysis is based upon that principal, which is fundamental in this study, as between line and terminal.

Q. In assigning the expense of repairs growing out of injuries, it would not be practical, would it—I mean with reference to the use

to which the car is put and the service in which it is employed—it would not be practical to go behind or beyond the fact of the injury for the purpose of determining the condition the car was in of strength or weakness which subjected it to that injury, in determining the expense of maintenance with reference to the use of the car. You would treat that weakness growing out of age and use as an incident which operates in all branches of the service in a way which is uniform. If a unit is subject to injury from a slighter cause in line service it would be subject to slighter injury probably in terminal service. You simply look to the service or the use the car is put to at the time in the assignment of expenses: Am I correct on that?

A. You are. And to illustrate that point I may say that in repairing a wooden construction car, for instance, it may be found that a wheel is decayed. In such case the wheel is removed and a new one applied. Probably the other companion wheels are eight, ten, or twelve years old. So that a new wheel is applied and
1024 starts in on its life journey against other wheels that are ten or twelve years old. In the course of service the car may have become damaged as the result of rough treatment, and when brought into the shop for renewal of all broken wheels it may be found that one or two of the older wheels are approaching the condition of the one first mentioned, which had been previously removed. If the car has been damaged in line service I charge the expense of repair to line; and if it were damaged in terminal service I charge it to terminal, regardless of the respective physical condition of the two wheels. For the reason that the question of decay or the perishable feature of everything that perishes by action of natural elements is always going on, in cars, engines, ties, bridges, and so on. So my subdivision and analysis is predicated upon the service in which the car was at the time it sustained the injury, and I do not go back and attempt to segregate from and set up apart the item of decay, because it is not a question of decay, but a question of the service the car was in at the time it was damaged.

Q. Mr. Wellington's formula contained an estimate of the expense of repairs growing out of stopping and starting: Have you any means of knowing what character of service he had in mind for making that division for stopping and starting—whether just ordinary normal operation or the expense incurred through accidents that might happen in starting and stopping—such as collisions, impacts, and things like that.

1025 A. Well, I presume he had in mind the normal use of cars in making the ordinary stops at stations and starting away from the station, which would not include any damage from accidents. I assume that from the fact that he does not point out the accident feature. Neither does he use any terms in his discussion, which would indicate he had in mind normal wear as against rough treatment.

I hesitate to criticize Mr. Wellington, or any such able authority as he is, but I cannot find anything in his formula which I can interpret as indicating that he had in mind line and terminal service, or

normal wear and rough treatment as set apart or as on each side of a line of demarcation drawn between the two.

Q. In the division made by you between line and terminal service the expense of repairs, may occur in both branches of the service, may it not?

A. It does occur in both branches of the service, both line and terminal.

In train movement, where the stop is for coal or water or for a railway crossing, or to meet a train, which is necessary in train movement over a section of road, that is a line charge. It sometimes happens that cars are seriously damaged in handling them that way.

The other expense is terminal, which constitutes the greater majority of injuries to cars and consequently the greater amount of repairs growing therefrom.

1026 Q. In making your division between these two branches of service, line and terminal, you gave consideration, did you not, to the liability of injury growing out of that element of starting and stopping?

A. Yes, sir, in both services.

Q. That is what I mean, in both services.

A. Yes, sir.

Q. It is taken care of in that way in your assignment of expenses, between those two branches of service.

A. Yes, sir.

Q. It would not be practical for you, would it, in making a division of these expenses between line and terminal to set up starting and stopping as an independent item of expense to be treated as Mr. Wellington has treated it in his formula?

A. I cannot understand how it could be. It is beyond my comprehension to figure out how that could be done in the form and method which he has employed. My formula being so entirely foreign to it, I do not see how I could do that. I think it would be a practical impossibility.

Q. Mr. Wellington charges 5% to wheels on account of stopping and starting; 2% to springs, and so on. That illustrates it. That is, to the different component parts of a car.

A. Yes, sir.

Q. What you are doing is to assign that character of expense as between line and terminal. That is the difference between your formula and Mr. Wellington's?

1027 A. Yes, sir.

Q. You have already explained that there are stopping and starting in both lines of service?

A. Yes, sir.

Q. And you considered that element in your assignment of expenses as between those two lines of service?

A. Yes, sir.

Q. And in that way you took care of it.

A. That is correct.

Q. In terminal he has an element of expense, maintenance repairs, and so on, of the terminal making up of trains: That is taken

care of in your estimate, isn't it, with reference to the repairs that may be necessary in the two branches of service, line and terminal?

A. Yes, sir.

Q. As I understand it, that character of injury may result from rough handling or it may result from normal conditions in operation?

A. Or a combination of both.

Q. Yes, or a combination of both.

A. Yes, sir.

Q. It is common in both branches of service. It may occur in line or in terminal service.

A. It does occur in both.

Q. And no man can divide it except upon his judgment based upon his experience in dealing with matters of that kind.

1028 A. I don't think any man could. That is my opinion.

Q. Mr. Symons, this terminal making up of trains may include the making up and breaking up of trains, which is line service.

A. Oh, yes.

Q. And it may also include the switching for instance of cars to industries, which I understand is a terminal service?

A. Yes, sir, that is correct.

Q. Have you any means of judging which one of these things it does mean, or whether it includes both, from an examination of Mr. Wellington's table?

A. No, sir, there are no means of determining it at all. There is no key.

Q. If it does not include both, then Mr. Wellington omits one of those elements, doesn't he?

A. Well, he does not draw the line of demarcation as between them. I can say that. I hesitate to criticize my friend Wellington, but I must say that is rather ambiguous.

Q. If he does not include both then he has omitted one or the other which he does not include.

A. I should think so.

Q. If he has included both, would it be possible for you to assign that expense as between line and terminal service on any such basis as he has made here?

A. No, sir, I could not.

Q. Where is the other service, if this means just what it

1029 says, the terminal making up of trains, where is the other kind of service provided for in this table—that is, the terminal service?

A. It is not provided for.

Q. You take these elements into consideration in your division between line and terminal with reference to the extent to which the injury may be inflicted by the operation of cars in the two classes of service, don't you?

A. Yes, sir.

Q. Based, as I said a while ago, in connection with another matter, upon your knowledge and experience in such matters?

A. Yes, sir.

Q. Mr. Wellington does not undertake to do any such thing in this table, does he?

A. I failed to find it there.

Q. Isn't it a fact that your formula and Mr. Wellington's are so radically different that it is not possible to compare them?

A. Yes, sir. There is as much difference between them as there is between an allopath and a homeopath or a Christian Scientist; or as between a Republican or a Democrat in politics. And you cannot measure his goods with my yardstick or my goods with his yardstick. They are absolutely not comparable at all.

Q. What was Mr. Wellington's occupation or profession?

A. He was quite a noted civil engineer, particularly in
1030 construction, tunnels, embankments, bridges, and so on.

Q. He was not a mechanical engineer?

A. I don't know, but I think not. He is known and recognized as an authority on civil engineering.

Q. His experience as a civil engineer would not be calculated to give him a very intimate knowledge of these mechanical matters, would it?

A. I think not. It is my idea that his data which he uses with respect to cars and locomotives was second hand; that he secured it from some one else, and, therefore, might not be and probably was not able to judge as to its accuracy or the best methods for its application.

At yesterday's session it was stipulated that I should produce some charts showing the anatomy of different parts of railway equipment. I have them here to submit this morning.

Q. Will you offer those in connection with your testimony as Exhibit No. 50?

A. Yes, sir. I think I should testify what they are.

The first is a chart showing the anatomy of a freight locomotive, generally known as the Mikado type of engine, without the tender. It is shown in sectional view, so all of the parts of the locomotive are clearly outlined. They are also named or described by name and each part is numbered. The numbers run from 1 to 303 inclusive, and this does not include the tender.

The next exhibit, 50-A, is a chart showing the anatomy of
1031 a passenger car with a diagram showing the names of each of the parts, the numbers running from 1 to 285, inclusive. The car is what is known as a first class passenger coach with a four wheeled truck, the car body being of wooden construction.

Exhibit 50-B is a chart showing the anatomy of a freight car, of the box car type, with a list of all of the parts, these parts being numbered from 1 to 243, inclusive. The car is what is known as a standard box car of wooden construction. The trucks are metal.

Exhibit 50-C is a chart showing a freight car known as a double hopper gondola type. The car body and sides are all of wooden construction; the trucks are all metal. The parts are enumerated by name and number, the numbers running from 1 to 141 inclusive.

1032 T. A. Hamilton, recalled, testified as follows:

Direct examination by Mr. Moore:

Q. Mr. Hamilton, have you prepared an exhibit showing the effect of applying locomotive and car repair percentages, as testified to by Mr. Simons, to the exhibits heretofore filed in this case by you?

A. Yes sir.

Q. Will you file that as exhibit 51 to your testimony?

A. Yes sir.

Q. Will you please explain the exhibit?

A. This exhibit has been written in narrative form to obviate as far as possible the necessity for explanation in the record. It very largely speaks for itself. The only explanation I wanted to offer in connection with it is this: that to avoid burdening the record, we did not re-work all of the various and voluminous exhibits to which this is an amendment. We have simply shown here the concrete effect of substituting Mr. Simons' percentages for those which were originally used and as set forth in exhibit 1. The two sets of percentages are compared on the first page of exhibit 51, and it may be well to summarize briefly the effects of applying the new percentages.

In the year ended June 30, 1913, the net effect on the operating expenses of the intrastate business is to decrease the charge to intrastate total business $731.10. That is the net result of the decrease in the passenger and increase in the freight business, intra-

1033 state.

In 1912 the net difference is $20.39.

In 1911 the increase is $354.73.

In 1910 it is $344.60.

And in the four months of 1907 it is $46.01.

Q. That is an increase?

A. Yes sir. The explanation of why the change of percentages does not produce a fluctuation in a uniform direction of decrease or of increase, I will say that some items were directly allocated to intrastate and to interstate. In the casualty accounts, such as "loss and damage, freight" and "loss and damage, baggage," they were not affected by those changes. Contra changes, corresponding exactly to these fluctuations in the intra expenses were of course made by the application of these percentages in the interstate; the total expense assigned to the state remaining unchanged.

In connection with exhibit 51 I will state that the detailed working memoranda bringing down all these changes from our former exhibits, have been carefully preserved in readily acceptable shape for examination, if the accuracy of these figures is desired to be tested.

Q. You will hold them subject to the use of the state if they should desire to examine them?

A. Yes sir.

Q. Have you prepared an exhibit showing maintenance of way and structure charges per mile of line in the state of Arkansas as compared with the entire railroad, as suggested by Judge Trieber in your former examination here.

1034 A. Yes sir.

Q. Will you file that as an exhibit to your testimony?

A. Yes sir, I will file it as exhibit 52.

Q. Have you a map of the lines of your system in Arkansas, showing all the lines? If so I wish you would file that as an exhibit.

A. I have. The two maps show the entire line, and in a separate map Arkansas is shown alone, on a larger scale.

In explanation of the map covering the entire line I want to say that it was published at the time the C. & E. I. and the Gulf Coast lines were a part of the Frisco system. We have no later one available. But the lines which comprise the St. Louis & San Fr-isco Railway, the road interested in this litigation, all lie north of the Red river, and exclude the C. & E. I.

As to the Exhibit 52, covering maintenance of way and structure averages, and information upon which was requested by the court, it will be noted that the charges per mile of line for the whole years are shown, and run practically level.

I would like to draw particular attention to the fact that in November and December 1913, our test period, the maintenance per mile of line in this state was $233.00. For the four months ended December 31, 1907, the last four months of that year, the maintenance charges per mile of line were $463.00. This is within $3.00 of being exactly double the charge for the two months in 1913; and the proportion of time in 1913 was just half that of the 1907 period.

1035 This seems to indicate to me that we had a normal amount of charge for maintenance in our test period as contrasted with the other.

One other mat-er should be noted, and it is that the average per mile of line in Arkansas runs a little higher through all the period than for the average maintenance cost for the entire railway. That with the single exception of our test period in 1913.

In explanation of that I have shown in an exhibit a table which shows the miles of bridges and miles of trestles per mile of road in Arkansas and on the entire line.

It will be noted that the mileage of bridges in Arkansas per mile of railway is practically double, almost exactly double that of the entire railroad, and the mileage of trestles per mile of line in Arkansas is from 25% to 30% greater than for the entire railroad. This goes a long way toward explaining why the maintenance charge per mile in Arkansas is greater than on the entire line during this period.

The court's inquiry which brought forth this exhibit, at least as the court stated it to us at that time, based on the thought that perhaps due to the severe flood damage we have suffered in the Mississippi Valley in recent years, some of our periods here might have contained a greatly increased or abnormal charge for the maintenance of our railroad, it seems to me this exhibit will disabuse the court's mind of that supposition.

Cross-examination by Mr. Hill:

Q. Turn to page 385 of your testimony, Mr. Hamilton. You testified as to the sum of $393,000, in round figures, found in the affidavit, which for want of a better term we call "a balance," in our reconciling figures. You stated there was no abnormality in the reduction of this figure from the revenue; that these reductions were made from revenue on account of over-charges, etc., etc.

1036

Have you looked into that since you testified in this matter.

A. Yes sir, I looked into it jointly with Mr. Oliver, representing the State.

Q. Have you any other statement to make in regard to that situation?

A. I find that Mr. Oliver's statement concerning those figures which appear in the original affidavit filed by Mr. Douglas, and on which we subsequently based our exhibits 27 and 27-*a* for that period, is correct. That was the figure necessary to reconcile the auditor's assignment of earnings to states, on his so-called commodity sheets, with the total earnings actually taken up on the company's general ledger for the same period. It was arbitrarily spread over the various states, my recollection is, on a road mileage basis.

Q. Twelve per cent?

A. That is a road mileage basis. Mr. Oliver is correct in that. But in discussing that with him I would like to add something which will perhaps clarify the situation.

In discussing that with him we brought up this question: Our exhibit 27, which is based upon these original figures of Mr. Douglas —this is freight earnings we are talking about—shows freight earnings both interstate and intrastate. It was agreed between us—I am certain Mr. Oliver will bear me out in this—that this fluctuation did not touch the interstate earnings.

1037

That would seem to be further supported by the fact that we made an actual re-assignment or re-check of the assignment of intrastate earnings to Arkansas in that period, and found that they came within a fraction of one per cent of Mr. Douglas' original assignment.

So that while it is true that to reconcile the commodity sheets prepared by the auditor with his general books, this adjustment or so-called reconciling figure had to be used and arbitrarily spread on a road mileage basis in the various states in which we operate, it did not affect the intrastate earnings which we have taken up for Arkansas in our exhibit.

I would like to say further that the statement that I made when that matter was under discussion, in the part of the record to which you have referred, the explanation I gave as representing refunds, agents' relief, etc., was given in good faith, and was the explanation given me by our auditor.

Q. I don't doubt that. You were just mistaken on the information you had before you at that time.

A. That is correct.

Q. We wanted to make an exhibit, and we wanted you to state that mistake instead of bringing it out ourselves.

A. Yes, that is correct.

Q. Here is another matter I want to run over briefly with
1038 you. It is a repetition, but I get confused on the relation of these various percentages. I want to run over it, not in detail, but hurriedly. I wish to ask you as to the relation of the two months of 1913 to the four months of 1907. Will you state in just a brief way without going into detail again, what your plan was? You have it but it is in such detail that I would prefer to have it in succinct form.

A. You mean our way of applying the 1913 results to 1907?

Q. Yes.

A. Following the formula Exhibit 1 in detail, and working it out, as has been explained in these exhibits, and in the testimony, we arrived at the percentage of excess cost per passenger mile and per ton mile of intrastate over interstate business. That is shown in exhibit 7.

We applied that excess cost percentage to the operating expenses of the next preceding fiscal year ended June 30, 1913, with the exception of "loss and damage, baggage," and "loss and damage, freight," figures, which are an actual allocation. That is, we applied these excess cost percentages to the ton miles and passenger miles intrastate in 1913, adding the extra cost by a process of equation which I think we all understand.

Then we carried those 1913 extra cost expenses, which were a little modified as to the test period by reason of this actual allocation of loss and damage, back through all the preceding years, equating the ton miles and the passenger miles in each period.

1039 Q. You obtained the relation between the passenger and freight through the statistics of the test period of two months, applying line expense for maintenance of way between those two services on the engine ton mile basis?

A. Yes, that is correct, straight line.

Q. Then you take those percentages as I recall them, dropping the fractions, 49 for passenger and 51 for freight——

A. I don't recall them exactly, but that is about it. It is about 50 and 50.

Q. That is approximately correct, according to your memory?

A. Yes sir.

Q. You take those relations and apply them to the actual line, the maintenance of way expenses of 1913 to divide between passenger and freight?

A. That is correct.

Q. Then you take those same percentages, or, rather, the results reached through those percentages in 1913, and apply them again to the line expenses for maintenance of way for the four months of 1907?

A. That is not exactly the process, Judge Hill.

We made certain tests in these two months of 1913, and it could be made only concurrently as the traffic of the railroad moved. We

could not go back and make them; that was a physical impossibility. One of them was this engine ton mile. Of course we could have gone back on that.

Q. I understand that.

1040 A. The concrete results of doing that and making several other tests and applying them to 1913 was that we obtained the excess cost per ton mile and per passenger mile for intrastate, endeavoring in that way to supplement the opinion testimony which had previously been given in other cases.

Q. I understand that. But in working that back to 1907 necessarily this extra cost predicated upon this percentage of 1913 would result from it?

A. It is in there, yes.

Q. It is in there?

A. Oh, yes.

Q. That is the point I wanted to know about.

A. Oh yes, that is it.

Q. If the engine ton mile for the four months of 1907 and the engine ton mile of the two months' test period were different, it would be to that extent erroneous, wouldn't it?

A. Yes, but you will have to go further than that, Judge Hill, because we first determined what was line maintenance expense, by keeping track of the expenditures on each individual piece of track, minutely during the test period. All we aimed at was to get at the excess cost per ton mile and per passenger mile.

Q. I understand that. That excess cost would be affected necessarily by the engine ton mileage of the test period?

A. Oh yes, that is one of the elements.

Q. If the engine ton mile of any other period was different, and not fairly reflective, it would be to that extent erroneous?

1041 A. Whatever the effect of a concrete difference would be. But it is so small in extra cost, it would be so small that you would have to use a microscope to find it.

Q. We are using a microscope.

A. Apparently so.

Q. I think somewhere you testified—I looked for it last night but I couldn't find it—that the passenger train service from 1907 to 1913 had been fairly constant. Is my memory correct on that?

A. There is an exhibit here which shows that.

Q. What one is that? I am not speaking of your abnormality exhibit.

A. That is where it came in. Exhibit 38 shows it, Judge Hill.

Q. I thought that did not reach the exact point I had in mind. As I recall your testimony there has been practically little change in the passenger train service.

A. Yes sir. This shows the same number of trains per miles per day within a fraction of 2/10 of a train.

Q. I had this before me, but would it prove that proposition that it had been fairly constant, the same number of trains and class of trains, and so on, had been running practically the same during these varioud years?

A. It shows this—it answers one part of your question—there is another exhibit here which you will recall, exhibit 37, which shows we operated practically the same road mileage.

1042 Q. I think only five miles different?

A. Yes sir. That was building a cut-off.

Q. That was built in 1913?

A. It was built in 1910 or 1911.

Q. That was the Marion-Hulbert cut-off. That was the only change in your mileage?

A. The point I have in mind, to answer your question, is that practically the same road mileage, the same number of trains per mile per day, like a procession passing a given point—you have necessarily the same thing, the same train service. Whether those trains consisted of the same number of baggage, mail, pullmans and diners, I would have to go further to find out.

Q. That is the point. I understood you to testify it was substantially the same.

A. I don't recall I said that.

Q. That is a fact, isn't it?

A. I think it is, but I wouldn't want to say so offhand. We might haul more pullmans or we might put in a diner where we used a dining station, or something of that kind.

Q. I don't know the line very well, but I would say off-hand it is the same.

A. In Texas I think it is about the same, but I am not sure as to No. 5 and No. 6 on the Memphis line, or on the Branch lines. But this is the exhibit that you have reference to.

1043 Q. So far as you recall now, the consist of the trains was substantially the same during all those years?

A. Really, Judge Hill, I have no knowledge on the subject. I would have to look it up.

Q. Have you not? But this exhibit would show the same train service during these years?

A. I think I might say this, if it will help you to a solution of whatever problem you have in mind, that our average makeup of passenger trains, taking the road as a whole, has not changed materially during the last eight or ten years, so that will answer your question. But whether as many Pullmans, diners, or coaches or baggage cars are carried, I cannot quite say.

Q. In your exhibit No. 52 you ascribe the higher maintenance of way expense in Arkansas to more bridges and trestles than upon the main line: Is that the point of your explanation?

A. That is one of the reasons, Judge Hill. I do not ascribe it all to that:

Q. Give us the balance.

A. Where you have bridges and trestles in the quantity that is indicated here, indicating waterways necessarily left open in the embankment, it is a practical certainty, especially as to the trestle proposition, that you have country in which there is a great deal of water or you would not have the waterways. Where that is the case you have a heavier maintenance charge, undoubtedly, no matter how

good your drainage may be. Your bank is softer and harder to keep up, and probably more waterfalls and there is more erosion. But a swampy or water ridden country is always
1044 more expensive to maintain track in, than high and dry land, and these openings or waterways indicated by bridges and trestles indicated that wet country.

Q. How much of your mileage is in the wet country condition, Mr. Hamilton?

A. After you get to Mammoth Springs—south of Hoxie we have a good deal of it.

Q. You don't have much of it after you cross the Crawley Ridge?

A. I don't know where that Ridge crosses——

Q. I don't either.

A. But below Mammoth Springs and Spring River, in the country down there you get practically the whole main line of Arkansas.

Q. You don't get any Mississippi Valley country until after you get to the Crawley River?

Mr. Moore: There are a number of rivers there, the Black, White and the Ash.

A. The point I have in mind is we may not have this wet country condition, necessarily, in a river bottom. A river may run through a rocky country, but where you leave trestles in your track you leave them for drainage purposes, and you only drain where you have water, necessarily. That was the connecting link between the two.

1045 L. S. MAYER, a witness of lawful age, being duly produced, sworn and examined, testified on behalf of the defendant, as follows:

Direct examination.

By Mr. Hill:

Q. State your name, age, residence and occupation.

A. L. S. Mayer; I am over twenty-one years of age; Auditor of the Corporation Commission of Oklahoma in charge of the division of statistics and accounts.

Q. How much railroad experience have you had, Mr. Mayer, and of what has it consisted?

A. Including the period of time that I have been employed by the Corporation Commission of Oklahoma, practically fourteen years. It has consisted in employment in maintenance of way, mechanical, transportation, executive and accounting departments, with the C. B. & Q., the Iowa Central, The Chicago & Alton, and the M. K. & T. Railroads.

Q. How long have you been with the Corporation Commission?

A. Practically three years.

Q. What does your line of work there consist of?

A. As Auditor in charge of the Division of Statistics and Accounts it has been my duty to establish systems of cost accountings for public utilities, the investigation of their books and records in connection with rate litigation, and general statistical work.

Q. Have you examined Exhibit No. 1, the formula used
1046 in apportioning the revenue and expenses and property to interstate and intrastate, passenger and freight traffic?

A. Yes, sir.

Q. This formula, in general terms, is being or is about to be used in Oklahoma, is it not?

A. Yes, sir.

Q. Do you understand it?

A. I think I understand the principles that are sought to be brought out, and also understand the effect of some of the erroneous theories used.

Q. I want to call your attention to the testimony of Mr. Hamilton, found at pages 276 to 279, an argument for the use of the engine ton mile basis as between freight and passenger: You have read this and studied it, have you?

A. Yes, sir.

Q. At page 277 this question and answer are given:

"Q. And assumed the gross engine miles as between freight and passenger would reflect 10% of the actual injury, we might call it; and 90% of the elemental injuries?

A. No, sir, we assumed the size of the engine, indicated by its weight, indicated the weight and speed of the train it was expected to pull, and that was the use that the train got out of the track, regardless of how the necessity for its upkeep and repair arose, whether elemental or straight wear and tear.

Mr. Hill:

Q. That total disregards the tonnage behind that engine and it also disregards the speed made, other than you assume the ideal conditions in operation of your engines?

A. I do not say it disregarded the tonnage behind the engine, because that indicates the size of the train, and is one of the
1047 prime factors.

Q. You assume that the engine hauls what it could haul behind it?

A. Yes, sir.

Q. That is assuming an ideal operating condition?

A. That assumes conditions we attempt to get; not putting too fast an engine on too slow a train. But putting on that engine a load its size would indicate it should haul, at a given speed.

Mr. Moore:

Q. This assumed condition exists on your road?

A. Yes, sir.

Mr. Hill:

Q. Does anybody else get that ideal condition? Is not that conjecture on your part?

A. It is not conjecture. We think we are very close to that assumed condition on the Frisco, as will develop before we finish here."

Then he takes up some detail.

Mr. Nay testified substantially to the same effect, and at page 769 he says,

"A. I think it is largely due to the element of speed. When you come to divide between freight and passenger, you have the passenger train running at so much greater speed than the freight trains. We found that the weight of the engine reflected the speed of the train. You had to have a heavier engine to pull a train fifty miles per hour than to pull the sam train twenty-five miles per hour. By using the engine ton miles we have reflected therein the element of speed."

Then he takes up another phase of it.

Mr. Moore (to Mr. Hill): You say that is on page 769?
Mr. Hill: 769 and 770.

Q. In discussing this basis with Mr. Nay the following questions and answers were given on page 799:
1048 "Q. You must take into consideration both speed and weight.
A. The engine ton mile does that.
Q. How does it take into consideration the weight?
A. The word "ton" represents weight, and the word "mile" represents distance.
Q. That is the engine only, and does not represent anything behind it?
A. I think it does, because the heavier engine pulls the heavier train."
Then it goes on to take up exceptional instances.
I have read that to you and ask you if you have given attention to that position assumed by the railroads in this case?
A. Yes, sir.
Q. Have you made any investigation of the actual condition in regard to those theories?
A. Yes, sir, with reference to the Frisco, Santa Fe, Rock Island and M. K. & T., and particularly in this case with reference to the Frisco.
Q. Have you prepared an exhibit in regard to the Frisco on this subject?
A. Yes, sir.
Q. Before you introduce that exhibit explain how it is made up and what data it is based upon.
Mr. Moore: Let us have a copy of that?
A. Yes, sir. (Handing copy to counsel.)
Q. Can you give me two?
A. Yes, sir. The exhibit is based upon figures——

1049 Mr. Moore: Before you begin, Judge Hill, how do you wish to designate your exhibits?
Mr. Hill: We are going to designate ours by letters. This will be CC. It follows some Mr. Simpson has. It is out of order just now——

Mr. Moore: I understand you have not introduced it yet.

Mr. Hill: No, but I will give it to you now.

Q. I just want the history of it now, Mr. Mayer, how you made it up.

A. The St. Louis & San Francisco Railroad receives from each Chief Dispatcher of each Division a form known as CT-64, which, in addition to giving the train number and the time that it leaves and arrives at terminals, and the points between which it operates, gives the number of ton miles handled on that train, the ton miles being placed upon the form in the Car Accountant's office in Springfield. In the same office the——

Mr. Moore:

Q. The gross or net ton miles?

A. That is both gross and net ton miles, which are taken from the wheel reports.

In the same office the number of gross ton miles which the engine in question might have hauled between the two points is noted on the form, which is known as its potentiality, or maximum rating, and is placed in the next column.

1050 The results of all such CT forms for a given month, by divisions, are carried to a recapitulation statement which is known as form 1128-A, old form 1190.

CT-64 local is made for both freight and passenger: In the case of passenger instead of the gross ton miles being shown on the form the actual car miles of the particular train are shown.

Mr. Moore:

Q. Is there any potentiality for that?

A. No; excepting for a brief period there was no potentiality shown.

Q. What period?

A. I think the record in this case shows it for twenty days in June.

Mr. Hamilton: I think Mr. Mayer is misinformed. I would like to correct a statement.

Mr. Hill: All right; if you have any for the twenty days we will put it in.

A. I should have said instead of the car miles being shown the gross ton miles were shown for passenger. That is the way the record stands.

Mr. Hamilton: It was the potentiality proposition that I was referring to——

Mr. Hill: I understand.

Q. The figures you have before you are on the car miles——

A. The figures I have for freight, and the potentiality has been figured.

1051 This form 1121-A (old form 1190) shows the train mileage; car mileage, loaded and empty; net tons one mile; net tons per train mile; gross tons one mile; gross tons per train mile; average engine rating per train mile and per cent of rating hauled,

for both directions, east and west bound, for all of the divisions making up the company.

Q. You had better explain right there, Mr. Mayer, the difference in the rating of the potentiality in the different directions.

A. The potentiality of engines is a matter the data for which is furnished in the time table. All engines are classified for tonnage, that is, all engines which might pull a freight train are shown in each time table, classified from 11 to 45, sometimes with a few exceptions. The transportation department——

Mr. Moore:

Q. What timetables are those, freight timetables?

A. Time table. There is only one time-table on a railroad.

The transportation department in connection with the Mechanical Department, and sometimes assisted by the Engineering Department, arrives at the maximum train in gross tons which can be handled between different points on an operating division. These are shown in what is known as a tonnage rating statement in the time-table
on the Frisco Railroad, and the tonnage class of engines is
1052 also shown. For instance, take Class 26, which includes engines from 558 to 572; 600 to 609, and 700 to 704, — handle in one direction one amount of tonnage between points and in another direction a different amount.

Under classification No. 26, on the River and Cape Division classification 26 engines will handle between Tower Grove and Crystal City a maximum of 735 tons. From Crystal City to Turrell, 1800 tons southbound. Northbound the same class of engines will handle 1800 tons between Turrell and Crystal City, and 735 tons from Crystal City to Tower Grove.

In that case the rating is the same in both directions for the same part of the road.

Mr. Hill:

Q. Take it at Boston Mountain to Winslow, that will probably illustrate the point better than some others. I believe that rating changes at Chester, does it not, Mr. Hamilton?

Mr. Hamilton: It changes at the foot of the mountain at Chester, I think.

The Witness: Classification 43, engines which are from 1200 to 1280, handled from Monett to Chester, westbound, 1100 tons; from Chester to Fort Smith, 1275 tons.

Eastbound the same class of engines from Chester to Winslow handled 550, and the same class would handle between Fort Smith and Seligman 1100 tons.

The difference in the rating, of course, is generally caused
1053 by the gradients.

Q. In other words, an engine going south in that condition could pull a given amount of tons more than in going north?

A. Yes, sir.

Q. That is made up by divisions or by stations where the gradients change?

A. It is between stations where the conditions in gradients change.

Q. Now, go ahead; I just wanted that point made clear.

A. In the Car Accountant's office where these CT-64 forms are received from the Division Chief Dispatcher——

Mr. Moore:

Q. Before you go into that, Mr. Mayer, you are referring here to records and papers: Are you going to file them as exhibits?

Mr. Hill: We are going to file copies. We had an agreement with Mr. Hamilton to bring the original——

Mr. Moore: You will file that time-table?

The Witness: Yes.

Mr. Moore: I would like you to do that.

Mr. Hill: All right.

A. —the net ton miles taken from the wheel report that the train actually handled is placed in one column, and the gross ton miles that the train actually handled is placed in another column. The gross ton miles includes the contents as well as the car.

The potentiality is arrived at by taking the time-table and
1054 finding out what the rating on the particular division for that engine is, and then this maximum rating in gross ton miles for freight is placed in a column provided for it on the report.

According to instructions in the back of the time-table it is stated that among the tonnage instructions, the loading of special trains out of terminals will be governed by the assistant superintendent, and that existing instructions relating to the loading of time freight trains will be unchanged——

Mr. Moore:

Q. I would rather have you read that than give the substance of it.

A. That is what I did. "And that existing instructions relating to the loading of time freight trains will be unchanged but will be subject to modification by bulletins and special orders. Under exceptionally bad weather or rare conditions when the assistant superintendent's office cannot be reached, 10% less than the published rating may be handled and the circumstances reported to the Assistant Superintendent."

Q. You are reading now from the time-table?

A. Yes, sir.

Q. Will you give the page?

A. It is on page 11 of time-table 28 of the River and Cape Division.

The same instructions, with a few modifications, appear on page
9 of time-table 28 of the Central Division, and I will call
1055 attention to this one paragraph:

"The loading of local trains out of terminals will be governed by the Assistant Superintendent, it being the intention to have local trains do all of the station work and clear the road."

I merely bring these few matters to attention in order that it may be seen that regardless of the size of an engine the train behind it is dependent upon other things entirely than the mere size of the

engine that is assigned to it, with the modification, of course, that an attempt is made to load trains as nearly as can be under the circumstances. But it is not possible where the direction of traffic is so much excessive in one direction to have exactly the right sized engine, or to be able to give it the right and correct load without running a lot of engines back over the road light.

Mr. Hill:

Q. It is after twelve now, but I just want to get the history of it.
Mr. Moore (to Mr. Hill): Won't you put this in now?

Mr. Hill:

Q. Have you reduced your information to an exhibit which you will call Exhibit CC?

A. Yes, sir. Exhibit CC covers the two main divisions in the state, the Ozark and Central Division, for the four months of 1907, and the two months of 1913?

Q. What is the Ozark Division and what is the Central Division?

A. The Central Division, as shown on Exhibit CC, comprises the Fort Smith district only; that is the main line between Monett
1056 and Fort Smith. The rest of the Central Division main line is chiefly without the state.

Q. That is from the Missouri State line to Monett?

A. No, from Fort Smith south to Paris is also the Central Division.

The Ozark Division, as shown on this statement, the figures of which were compiled from Form 1121-A, includes the Willow Springs and Memphis subdivisions, which is the main line between Springfield and Memphis.

The reason it was necessary to take the Willow Springs Subdivision of the Ozark Division in this statement was because the 1907 form, No. 1190, was not divided between the Willow Springs and the Memphis Subdivision, so in order to make them comparable it was necessary to show the same amount of mileage in the 1913 months of November and December as was shown on Form 1190 for September, October, November and December, 1907.

Q. Was it the same mileage as well as the same amount of mileage?

A. When I said mileage I meant road mileage.

Mr. Moore:

Q. Is not that Willow Springs all Missouri?

A. Yes, that is true, but there is no way, I am informed, of securing at this time the data separated for the Ozark Division for the 1907 months between the Willow Springs and Memphis Subdivision.

1057 Mr. Hill: That is all at this time.

Mr. Moore: He has referred to some forms and time-tables: I would like to have them.

Mr. Hill: All right.

Mr. Hamilton: If he puts those 1190 forms in he will have all we have.

At this point recess was had until 2 o'clock P. M.

1058 After recess on Thursday, October 29, 1914, the following proceedings were had at two o'clock P. M.

Direct examination of Mr. Mayer resumed.

By Judge Hill:

Q. I don't know whether you have made it clear this morning, the comparison of the Ozark Division in 1907 with the Willow Springs-Memphis Subdivision for the two months of 1913: I wish you would explain that a little more fully.

A. The Ozark Division, as shown on these statements, Exhibit CC, covers the same mileage that is between Springfield and Memphis for the four months of 1907, that it does for the two months of 1913; and the same thing may be said for the Fort Smith Subdivision of the Central Division.

Q. Your comparisons are of the same track, only under different names?

A. Yes, sir.

Q. These statistics you have showing the gross tons one mile, and so on, are based upon what?

A. They are based upon St. Louis & San Francisco Form 1121-A, old form 1190, which in turn is based upon Form CT-64 for the two months of 1913. I don't know just what the number of the form was that they used in 1907.

Q. I mean further than that: Where are they obtained?

A. They are obtained from the wheel reports of the conductors.

Q. Will these statistics be identical with the gross tons
1059 one mile and the gross trains per train mile that Mr. Hamilton put into the exhibits in this case?

A. They would not be exactly the same, for this reason: The revenue tons one mile which Mr. Hamilton uses are presumed to be accurate. The figures which are shown on Form 1121-A, and taken from CT-64, based on the wheel reports, while they were made exactly the same in the four months of 1907, as they were in the two months of 1913, yet they include the gross weight of cars, some of which is slightly estimated, but generally under instructions of the company. The net ton one mile ought to be nearly the same, but there may be some slight variations in it.

Q. The wheel reports are revised, so to speak, by the Auditing Department, and made accurate?

A. Yes, sir.

Q. Or, rather, the Auditing Department does not quite take that, but they take an accurate statement, which would be the same as a revising figure—or you would better explain that.

A. They take their figures from the way-bills directly and the figures on the wheel reports for net tons are from the way-bills. The gross tons, of course, are not.

Q. They are estimated?

A. Practically; more or less estimated.

Q. At any rate, the two periods you have compared here go back to the same basis—that is, the wheel reports?

A. Yes, sir.

1060 Q. Take that exhibit and explain it.

A. On the first division, in the month of September, 1907, the eastbound trains carried 79% of their rating.

In other words, there was 21% more business that could and should have been handled on trains eastbound in the month of September, 1907, on the Ozark Division to approach what might be termed 100% efficiency in railroad operation.

For the same month, on the same Division, the westbound trains carried 62% of their rating; there being there a loss of 38% efficiency.

For the month of October, 1907, there was 79% of the rating handled eastbound compared 64% westbound. That difference is probably accounted for by the volume of traffic being different in one direction than in the other.

In the month of November, 1907, eastbound on the Ozark Division 75% of the rating was carried compared to 42% westbound.

In the month of December, 1907, 67% eastbound compared to 44% westbound.

Now it will be seen then, that these engines which moved westbound on the Ozark Division in December, 1907, handled less than one-half of a full train load or of what they should have handled had they handled a full train.

For the month of November, 1913, which is placed here on the same basis as the 1907 months, we find 82% of the rating hauled eastbound and 88% hauled westbound.

1061 Now there ought to be, to make the engine ton mile of value in the distribution of passenger and freight line expense, practically the same per cent of the rating handled in both directions, which is not the fact, as shown by this exhibit. And, in addition to that, it affects the normality, since it will be seen that in the month of November, 1907, 75% of the rating was hauled eastbound as against 82% in November, 1913, eastbound.

Westbound there was 42% of the rating hauled as compared with 88% westbound in November, 1913.

Going to the month of December, 1913, we find that eastbound there was 81% of the rating handled and in December, 1907, on this division 67% eastbound.

Westbound in December, 1907, 44% against 80% westbound in December, 1913.

Now the same engines that go eastbound naturally have to return westbound. They then make the same number of factors in a division between freight and passenger, under the formula here presented, regardless of the train that they handle.

In one case, for instance, take the month of December, 1907, there was actually handled gross tons per train mile 702 tons; whereas in December, 1913, there was actually handled 916 tons,

or an increase of 214 gross tons per train mile, which is approximately 33% increase.

Q. Just what does that mean?

A. That means that the trains which were operated in
1062 December, 1913, were more heavily loaded than they were in December, 1907, by 33%. There were more cars or there was more in the cars.

Q. How did the train mileage compare in those two periods?

A. Just taking the month of December, 1907, for an example, we find the number of freight train miles run eastbound was 56,168.

In December, 1913, on the same division, there was 29,212 train miles eastbound, or approximately ½ the number.

Westbound in December, 1907, there were 55,367 train miles run in freight service.

In December, 1913, there were 29,417, which is again about half.

Q. Producing there how many tons as compared with the other?

A. The 55,000 train miles in December, 1907, hauled westbound net tons one mile 9,786,117; whereas the 29,417 in December, 1913, carried 11,240,158 net ton miles.

That means that with about one-half of the freight train mileage there was an increase of about 1,600,000 tons more freight handled one mile.

The same kind of figures run clear through the whole exhibit.

Q. I see you carried a loaded and empty car movement. I wish you would explain that.

1063 A. On the Ozark Division in the month of December, 1907, with 56,168 freight train miles eastbound there were carried 853,812 loaded car miles and 277,922 empty car miles.

In December, 1913, with but one-half the number of freight train miles, 29,212, there was carried 412,781 loaded car miles and 153,817 empty car miles.

In the opposite direction, westbound, in the month of December, 1907, there was 55,367 freight train miles carrying 558,407 loaded car miles and 542,709 empty car miles.

In the month of December, 1913, on the same division, with 29,417 freight train miles westbound there was carried 653,328 loaded car miles and 241,267 empty car miles.

Now it will be seen that in December, 1907, westbound, the loaded and empty car miles were about the same, whereas in December, 1913, the loaded car mileage was far in excess of the empty car mileage westbound. Of course, all of that affects the loading of the train, affects the expense of operation and the expense of maintenance.

Q. Another thing, I notice in November and December, 1913, the statistics are divided between local and through: Did you have that data for the four months of 1907?

A. That data is not available for 1907. This form 1190 makes no division between local and through; whereas the new form 1121-A, which covers the months of November and December, 1913, does make such a division.

Q. I will call your attention to the difference in loading of
1064 the local and through and I wish you would point that out, particularly in regard to the potentiality of each.

A. Take the month of November, 1913, on the Ozark Division, in the Willow Springs district. You will find that eastbound the actual gross ton miles handled was 877 out of a potentiality of 1010 on through business, which results in 87% of the rating handled.

Take the local trains on the same district, Willow Springs, eastbound, for the same month, and we find there were 420 gross ton miles per train mile handled out of a potentiality of 691, which results in 61% of the rating being handled.

In the opposite direction, westbound, in the same district, for the month of November, 1913, we found on through trains out of a potential of 1,013 there were 939 tons weight actually handled, which results in a percentage of 93.

On local trains in the same district, in the same month and in the same direction, 409 tons out of a possible 737 were handled, which results in 55% of the rating.

Now if you were to go to the month of December, 1913, we find on the Memphis subdivision the through trains handled eastbound 85% of their rating, and the local trains 52%.

Westbound the through trains handled 79% of their rating and the local trains 59%.

All of this goes to show that regardless of how well a railroad is operated it is impossible to load a train up to its potentiality.
1065 The business is not there, to be handled in that way.

Q. It does not look as though an engine represents the load behind it.

A. The engine does not and cannot represent the load behind it.

Q. You have examined this Exhibit 38, haven't you?

A. Yes, sir.

Q. On passenger train miles, for various periods: the four months of 1907, the years 1910, 1911, 1912 and 1913, and the test months of 1913, which show the passenger trains per mile of road per day is practically the same, running from 4.9% to 4.4%. That would show that the passenger train mileage is practically the same during those years, wouldn't it?

A. Yes, sir, and it has been so testified here in addition to that exhibit.

Q. What effect does it have that the passenger train mileage, and therefore the engine train mileage, being fairly constant during this period; and the freight train mileage and freight engine mileage and load varying as you have pointed out, upon using the engine ton mile as a factor for dividing maintenance of way line expense between passenger and freight?

A. If the passenger train mile remains fairly constant, as has been shown here,—that is, between 1907 four months and
1066 the test months of 1913; and the freight train miles are reduced in 1913 compared to the four months of 1907, then the application of the division in the test months as shown in this formula, Exhibit 1, and the rest of the exhibits, results in an over-

charge for 1907 to passenger traffic; and results in the freight traffic in 1907 bearing less than its true burden.

Q. There is another phase of that. Assuming, as the testimony of Messrs. Hamilton and Nay indicated, that the engine represented the load behind it, and the passenger engine load has been fairly constant, what does 1913 represent in comparison with 1907?

A. The test months of 1913 then are bearing a greater burden on the passenger than in 1907.

Q. Well, in what way, Mr. Mayer?

A. If the passenger train miles are constant, and the freight train miles in 1913 are less than they were in 1907, then the effect is that the expense is actually charged to passenger in 1913, whereas in 1907 it would be charged to freight.

Q. The difference between the two relations?

A. It is the difference between the relative factors of the passenger to the freight.

Q. How do the engine miles compare with the train miles?

A. There would always be more engine miles than there are train miles. That will run—well, the train miles are shown
1067 from about 75% to 90% of the engine miles. That is on account of light engines running over the roads, and helper engines and things of that kind.

Q. Is there any reason why that relation would be different in 1907 than it would be in 1913?

A. No, sir, there is not any reason for that, that I can think of. It runs about the same every year.

Q. Take the Central Division, and without going into quite so much detail as you have with this other explain that and point out the difference in traffic and rating on that division.

A. The Fort Smith subdivision of the Central Division for the month, or, rather, for the four months of 1907, show an average of about 18,000 train miles eastbound handled 67% of their rating in September; 70% in October; 78% in November and 71% in December.

With about the same number of train miles westbound for the four months the per cent of rating handled was 83% for September; 72% for October; 60% for November and 63% for December.

In the month of November, 1913, the railroad got more efficiency out of their engines than they did in any of those four months. They handled 87% of their rating eastbound and westbound they got 76%.

Whereas in 1907 westbound they handled about 612 tons in October; 624 tons in November; 612 tons in December; they handled in November, 1913, 939 tons and in December, 1913, 922
1068 tons. There is quite an increase of train load there, about 56% westbound.

Eastbound the rating increased from about 700 to 937, or about 33% in November; and practically the same in December, 1913.

In train miles they had eastbound in November, 1907 19,102 and westbound 18,686.

In November, 1913, they reduced the train mileage run eastbound

to 12,732, about 33%; and 12,946 westbound, a reduction of about 33%.

These 17,507 train miles run eastbound, in December, 1907, carried 185,547 loaded car miles and 88,500 empty car miles.

17,266 westbound freight train miles in December, 1907, carried 137,430 loaded car miles and 120,323 empty car miles.

There is very little relation between the empty and loaded car miles westbound and eastbound. You will notice that the empty car miles eastbound in December are about one-half of the loaded cars, or about one-third of the total. Whereas, westbound the empty and loaded car miles were about the same.

Net ton miles eastbound in December, 1907, was 4,005,229, and westbound was only 1,957,846; only one-half as much.

Now eastbound the actual gross ton miles handled per train mile in December was 513, and westbound was 287.

1069 The per cent of rating handled eastbound was 71 against 63% westbound.

In November, 1913, on the Fort Smith subdivision, the 12,732 freight train miles, 216,000 loaded car miles and 55,000 empty car miles were handled eastbound as compared with 12,946 freight train miles westbound, handling 271,000 loaded car miles and 65,000 empty car miles.

They handled an average train load eastbound of 822 tons, which was 87% of the rating, as compared with 811 tons, which is 86% of the rating.

In December, 1913, the local trains on the Fort Smith Subdivision, eastbound carried 67% of their rating, handling 583 tons.

Westbound they carried 652 tons or 76%.

In net tons handled, the month of December, 1907, had 4,005,229 as against 3,590,186 in December, 1913.

Westbound there was handled 1,957,846, which is expected to compare with 2,755,507.

You will note that eastbound in December, 1907, there was a loss in the net tons one mile whereas westbound there was a large gain in the net tons one mile.

Q. What do all these facts indicate, Mr. Mayer?

A. They indicate, in the first place, that the size, type and weight of an engine have nothing to do with the load behind it, actually. That when this weight of engine is used as a factor for the division of line expenses between freight and passenger that it creates

1070 irregular factors for the division; that is, an engine in one direction will be handling a certain sized train, say 513 tons, in December, 1907; whereas when it goes the other way it will handle only 387 tons.

Q. That is not a very reliable yardstick to measure maintenance of way expense, is it?

A. It is not reliable at all for a division of maintenance of way expenses either between through and local or b-tween freight and passenger.

Q. How does the train miles of the four months of 1907 compare

with the train miles of the two months of 1913 in the Central Division?

A. In the Central Division the freight train miles eastbound for the four months of 1907 average about 18,000; whereas for November, 1913, they are actually one-third less, and for the month of December are about 40% less.

Q. Producing more or less tonnage?

A. The train miles in 1913 per train mile are producing more tonnage; therefore, they must have more cars behind them and perhaps more heavily loaded cars.

Q. What effect will that have upon using the 1913 percentages between passenger and freight, to arrive at extra cost, based upon that in 1907?

A. The result of using the 1913 engine ton miles for the two months which are in this formula and applying back to 1907, results in the passenger being charged too much line main-
1071 tenance, and freight too little.—just using the engine ton miles itself without regard to the value of it.

Q. Mr. Mayer, we have requested Mr. Hamilton to bring the original files of CT-64 here, and I have them now. I wish you would take such of those from this package as you may want to illustrate in detail these results you have worked out here.

A. I am going to read now from form CT-64 local, which are made out for the months of November and December, 1913, and which were made in the Chief Dispatcher's office and completed by the Car Accountant's office.

I find that on the Memphis subdivision of the Ozark Division in December, 1913, extra 723, Bowman & Jacobs, from station C-390 departed at 7:45 A. M. and went to station 340, arriving at 10:25 A. M.; made fifty miles and handled 67,200 gross ton miles when their potential was 67,500.

Extra 722, same date, Trussell & Loomis, from Station C-472 to C-340 carried 194,064 gross ton miles out of a rating of 219,000.

Extra 328, Barber and McWilliams, leaving Station C-447 for C-437, made ten miles and handled 160 gross ton miles when their potential was 8,000.

On that particular day eastbound there was 192 engine miles made; they carried 261,424 gross ton miles out of a potential of 294,700.

1072 Now the local train, on the same division, No. 244, engine 438, leaving Station C-420 for C-340 made eighty miles and carried 40,900 gross ton miles out of a potential of 65,300.

Train 246, which is a local that runs between Jonesboro and practically Bridge Junction, carried 31,297 gross ton miles out of a potential of 54,400.

The result on the local trains being that in 144 engine miles they carried 72,197 gross ton miles out of a potential of 119,700.

Westbound engine 723 returning carried 800 gross ton miles out of 92,500 potential.

Q. Is that a local or a through train?

A. That is a through train, extra light engine 723; a light engine going back with a caboose.

Extra 721, double heading with engine 216, from Station C-340 to C-472 carried 261,000 gross ton miles out of a potential of 244,200—carrying more than their rating.

The westbound through trains on that date made 314 engine miles and carried 482,106 gross ton miles out of a potential of 580,900.

The local trains westbound on the same division, train 245, engine 440 made eighty engine miles and carried 44,031 gross ton miles out of a potential of 80,000.

Train 247, engine 441, made 64 engine miles and carried 35,565 gross ton miles out of 64,000 potential.

1073 The result of the operation of local trains westbound and southbou*dn* on that date was that they made 144 engine miles, carried 79,596 tons out of 144,000 potential.

There is a further fact right there. You will note that engine 440 carried 44,031 gross ton miles——

Mr. Moore:

Q. What train is that?

A. Local train 245.

—whereas engine 441 on train 247 carried but 35,565 gross ton miles. I have here a statement which shows that these engines——

Mr. Moore:

Q. What are you reading from?

A. From the report of the original cost of steam locomotives of the Frisco Railroad as reported to the Corporation Commission of Oklahoma.

Mr. Moore:

Q. Of what date?

A. This is December 31, 1911.

It shows that these two engines weigh the same amount; that is, making the same number of engine tons per mile, but that they handled different sized trains. Their tractive power is just the same but they did not get the same per cent of rating out of one engine as they did out of the other.

Mr. Hill:

Q. That is very funny. I thought these engines represented the load behind them.

A. They would in ideal operation, which is very seldom secured.

1074 On December 12, 1913, on the Memphis Subdivision of the Ozark Division, which is in the test months, train 136, which is known as the steamer freight, and operates between Harvard and Thayer, had engine 721; and in 132 train miles it carried gross ton miles 190,571 out of a potential of 219,200.

Extra 697 on the same date between the same points carried 209,292 out of 219,200.

Extra 724 on the same date, between the same points, handled 191,007 out of 219,200.

Extra 308 on the same date (which was an engine and caboose) handled 160, gross ton miles out of a potential of 8,000.

The result of operation eastbound for through trains on that particular date was that they handled 591,030 gross ton miles out of a potential of 6665,600.

Local trains eastbound, train 244, engine 440 handled 34,887 gross ton miles out of a potential of 65,300—or about one half.

Train 246 handled 27,693 gross ton miles out of 54,400.

The result of operation being they made 144 train miles and carried 62,580 gross ton miles out of a potential of 119,700.

In other words, the local train carried about 50% of its potential while the through train carried about 80%.

1075 Westbound, extra engine 698, making 132 engine miles carried 169,839 gross tons one mile out of 244,200 potential.

Extra 695, Lynch and Freeman, carried 229,613 out of a potential of 244,200.

This results in the through trains making 264 engine miles handling 399,452 gross ton miles out of a rating or potential of 488,400, or a loss of about 25%.

The local train 245, making 80 miles, handled 45,279 out of 80,000 potential. And No. 247 handled 36,286 out of 64,000 potential gross ton miles.

The local trains that day made 144 miles on this subdivision and handled 81,565 gross ton miles out of 144,000 potential.

Q. Are all of those from the Ozark Division?

A. Those were, yes.

Q. Suppose you give us some from the Central Division—unless you want to give us more there to illustrate your point. Are those you have taken fairly representative?

A. They will run right along there all the time. The reason I know that is that they come out so on this sheet 1121-A, old form 1190. That is the reason the difference shows up.

Q. Now take the Central or any other division there and see whether you have fairly represented examples.

A. On the Fort Smith subdivision of the Central Division on December 11, 1913, which was in one of the test months,

1076 we have engine 983 from station 415 to station 315 making 138 engine miles handling 123,667 gross ton miles out of a potential of 131,525.

Engine 1264, Engineer Kirk as helper, from station 386 to station 375, made 11 engine miles.

Extra 725 from Station 375 to A-354 made 21 engine miles, handled 336 gross tons one mile out of a rating or potential of 19,425. This was an engine and caboose.

The result of through train operation was that out of 159 engine miles there was 124,003 tons one mile out of a potential of 159,950.

There was handled northbound extra 12, Gilbert and Dobbins, from station 313 to station 304, marked M and N-A. This is a foreign train and engine using the Frisco tracks.

Local train No. 742, engine 787, from 415 to 333, made 87 engine miles handling 78,549 gross ton miles out of 69,600 potential, which shows it handled more than its rating.

Westbound train 35 from station 282 to station 354, engine 970, a part of which is in Missouri, with engine 929 deadhead, handled 69,625 gross ton miles out of 66,600 potential. I don't know just where the deadhead engine would come in. It is not figured in the engine miles. It may be figured in the gross tons in that train.

1077 Second 35, engine 727, from station 282 to station 375, making 93 engine miles, handled 72,040 out of a potential of 74,400.

Q. Reduce those to percentages as well as you can.

A. That is pretty close to rating. That would make about 96% of the rating, but that is only one train. The percentages which apply actually are those that are in effect for the month, as is shown on these forms (indicating). You do not divide maintenance of way by trains, but by months, and in this case by two months. They are all in the same condition.

Mr. Moore:

Q. Have you read them all?

A. No, sir.

Q. Then how can you say they are all in the same condition?

A. I know the same condition must exist in every case, for if they did not exist the percentage of rating hauled would be more nearly 100%. I have never yet heard, in a rate case or any other case, where trains were supposed to handle their 100% rating.

Q. Take some of the passenger train reports and explain the difference between those and the freight; give us some samples from those.

A. The passenger proposition is a little bit different. Instead of figuring the potential for passenger trains they merely show the car miles handled. Now, it is supposed and it has been testified that they always have an engine that is suitable for the train; that is, for the fast heavy train they have an engine capable of doing

1078 that work; and on the light train they have a light engine for that purpose. Now, if these engines always fitted those trains then the addition of a car or two would affect them.

In going over this CT-64, locals, we find numerous instances where a train with the same sized engine has a more or less number of cars, making a more or less number of car miles.

On the Fort Smith Subdivision of the Central Division, on November 30, 1913, in passenger service, train No. 4, engine 1030 handled six cars, which resulted in 804 car miles, the distance being 134 miles.

Q. Where is that, from Monett to Fort Smith?

A. Yes, sir. Train 6, engine 1031, making 134 engine miles, carried 7 cars or 938 car miles.

Now, this report rendered by the Frisco Company shows that engine 1030 and engine 1031 were the same. They made the same

number of factors for the division between freight and passenger, but their operation resulted in different car miles.

Q. What was the difference in engine miles?

A. The engine miles were exactly the same, but the train- behind them were different.

Q. That was from Monett to Fort Smith, the other way, from Fort Smith to Monett.

Mr. Moore: How many cars were on train 6?

A. 7 cars on one train, with the same engine, the same dis-
1079 tance, and 6 cars on the other. The result was there was 16% more work done by one than the other; 16% more use of the right-of-way being figured in car miles.

Now train No. 3 in the reverse direction, on the same date, had 6 cars, making 874 car miles. And train No. 5, with engine 1031, coming back handled 7 cars making 938 car miles.

On the 29th of November, 1913, train No. 4, engine 1033, from station 415 to station 282 had six cars making 804 car miles.

Train No. 6, engine 1032, which weighs the same as engine 1033, had seven cars making 938 car miles.

In the opposite direction train No. 3, engine 1030, from station 282 to station 415, making 134 engine miles, had six cars making 874 car miles.

Train No. 5, engine 1032 had 7 cars making 938 car miles.

Q. Have you examined that Central Division enough to know whether those run fairly constant with the figures you have read?

A. I examined these at Springfield about 10 days ago and I came to the conclusion that they run that way about all the time. One day there would be an extra car and on another day there would be. They run from six to eight cars right along.

Q. Pass from those and see how they run on the Ozark Division.

1080 A. On the Ozark Division on November 29, 1913, train 104, engine 721, leaving from Thayer en route to Memphis carried 864 car miles.

Train 102, engine 202, moving the same distance, carried 720 car miles.

Mr. Moore:

Q. Is that also Thayer to Memphis?

A. Yes, sir.

Mr. Hill:

Q. The same engine rating?

A. No, sir, a different engine rating.

Train 106, engine 1102 from Thayer to Memphis carried 928 car miles.

Mr. Moore:

Q. Before you leave those other trains you first mentioned, compare those two engines and see what their rating is. I mean trains 102 and 104.

A. What do you mean by the rating?

Q. Give me the engine numbers on 102 and 104.

A. Engine 721 for 104 and engine 202 for train 102.

Engine 202, which had 720 car miles, weighs 225,700 pounds and its tender weighs 29,700 pounds.

Engine 102 on train 106, which made 928 car miles weighs 318,700 with a tender that weighs 131,700. The ratio of the weight of the engine to the car miles handled is different.

Engine 202 on train 102, which carried 720 car miles, weighs 225,700 with a tender of 91,700.

In the southbound train 101, engine 201 only had 432 car miles.

Engine 201 weighs 225,700 with a tank that weighs 91,700.

1081 Train 105, engine 1102, northbound, had 928 car miles, the same as it had southbound.

Train 103 with engine 212, had 720 car miles.

It is just a question of how many of these you want to put into the record in this case.

Q. Have you taken as many as you want out of the Ozark Division to be fairly representative?

A. That is a pretty hard question to answer. They all should be entered here, as a matter of fact.

Q. Can you turn to some of the branch lines there and see how they run on that compared with these two main line divisions?

A. In freight or passenger?

Q. I believe I would take some of both. Take freight first.

A. In freight these forms 1121-A and 1190 show the entire detail.

Q. They are the ones that are in the blueprints?

A. They are the blueprints, yes, sir.

Q. They are just summaries?

A. They are summaries of this CT-64.

The passenger on branch lines, while, of course, the engines do not get as full a rating as they might on the main line, yet there the number of cars are about the same all along. There are not very many changes.

Q. That would be more constant in passenger, I presume,

1082 than it would on the main line?

A. Yes, sir.

Q. I assume it would be less so on the freight on the branch lines.

A. Freight on the branch lines is very irregular.

Q. Have you any you can turn to without going all through that file?

A. The Mansfield Branch is a part of the Central Division. The results of its operations are contained in the branch line division of the Central Division as shown on form 1121-A.

Mr. Moore:

Q. Is that a summary?

A. That is the train performance statement, yes, sir.

Q. It is a summary of all the branch lines of that Division, is it not?

A. The branch lines of the Central Division are shown separate, and the branch lines of the other division, yes, sir.

Q. Are the branches shown separately?

A. The branches are shown separately from the main lines, yes, but the individual branches are not shown individually.

Q. That is what I want to know.

Mr. Hill:

Q. You could not give a particular example, it would be all the branches of the Central——

A. You cannot get that off form 1121-A, but you can get it from the CT-64 reports.

1083 Q. I do not believe I will go into any further examination on that at this time unless you want to take up some more, Mr. Mayer, to illustrate your point.

A. I don't think it is necessary. These forms Ct-64 that I have given are just samples picked here and there; the results are reflected in this form 1121-A properly.

There is a peculiar thing about the rating of engines and the division between freight and passenger. For instance, if the road was operated to a high state of efficiency then engines which have the same tractive power, so far as this formula is concerned, ought to weigh the same, but the statement of engines does not show that condition to exist.

Q. Give us some examples of that.

A. Here is engine No. 2252: The total weight of the engine is 130,00- plus 50,000 for the tank, and its tractive power is 12,200.

Engine No. 2253 with the same weight engine and the same weight tank has a tractive power of but 11,200, a difference of practically 8%.

When you get over into the newer engines you will find engine 3611, for example, weighs 129,000, the tender weighs 51,000, and the tractive power is 15,600.

Q. What effect would that have upon using engine ton miles as a basis to divide an expense between passenger and freight?

1084 A. Before I answer that let me finish this: Then we have engines 3716 to 3718, which weigh the same amount, but the tractive power is 15,000.

The result of that weight on this theoretical formula is as follows: If these engines and the weight that they actually had represented the trains, which I have shown they do not, then an engine which weighed a given amount ought to handle the same train, but since the tractive powers are different the result under this theoretical formula of trains handled would be different.

Q. The theoretic train, you mean?

A. I mean the theoretic train, entirely.

Mr. Moore:

Q. Do you know whether those engines you were referring to were switch engines?

A. Sir.

Q. I say, do you know whether those engines you were referring to were switch engines?

A. There may be some among them, but we have all kinds of engines here and I will give you any engine or class that you want. I will take a few out of the thousand class and give those to you.

Mr. Hill:

Q. What do you mean by "the thousand class?"

A. They are rated here for freight service.

Q. They are large engines?

A. Yes, they are. We have engines in the thousand class
1085 which weigh 309,800, with a tank 128,300, which have a tractive power of 38,200. And we have other engines of the same class, of the thousand class——

Mr. Moore:

Q. Give the number of all the engines used.

A. The engines that I quoted were engines from 970 to 989. Those are all freight engines.

Engines from 1,000 to 1,009 weigh 387,800, with a tank 134,250, and have a tractive power of 25,600. That means that with the greater weight of the engine of 26,000 pounds there is less tractive power.

Carrying that on we have engines 1010 to 1014, which weigh 330,000 pounds, with a tank 139,500, and tractive power of 25,600. That same condition exists through all of the equipment.

Mr. Hill:

Q. An engine with the same weight has different tractive power and carries behind it a different theoretic train: That is the substance of that, is it?

A. That is the substance of it, yes, sir.

Mr. Moore:

Q How do you know that same condition exists?

A. By an examination of this report which was sent to the Commission in Oklahoma and examined by me.

I can give you some more examples if you desire them.

Mr. Hill:

Q. Do I understand you to say that all of them are that way, or that it frequently happens that way?

1086 A. It very frequently happens.

Q. You don't know that all of the same weight have different tractive power?

A. No, sir.

Q. Is there anything more on that subject, Mr. Mayer, that you think of now?

A. Well, there is the peculiar relation, of course, of the theoretic and the actual train, and its effect upon the division of maintenance as caused by elemental conditions and by wear and tear.

Q. Explain your views about that. I believe it has been testified to frequently that from ten to fifteen per cent only of the maintenance of way expense was due to the use of the way by the trains: I wish you would give your views about the effect of these various trains upon the track.

A. In the first place, any method of division that is used, such as engine ton miles, applies only actually to the damage which the engine ton miles do. In other words, if a greater per cent of the repairs are necessary on account of elemental conditions, then in using the engine ton miles you are dividing the large amount by the factor of the small amount. In other words, you are turning the pyramid upside down.

Q. There is no question but what the elemental conditions cause from 75 to 90 per cent of the damage, is there?

A. Well, depending, of course, upon the geographical loca-
1087 tions and climatic conditions, it will run all the way from 75 to 90 per cent.

Q. What do you think of it as a factor to divide this 15 and 25 per cent?

A. The engine ton mile?

Q. Yes.

A. The engine ton mile, as is here shown, does not represent anything but the engine excepting, or, rather, it represents all the way from 40 to 80 per cent of the loading behind it. It is a very variable factor for the simple reason that in practical railroading the business has to be moved. The engine ton mile practically disregards the weight of the train——

Q. Is there not some damage to the way due to the weight of the cars composing the train?

A. There surely is.

Q. Is not the question of the loading of the cars a factor in determining the damage to the way?

A. Yes, sir.

Q. The weight of different cars also is a factor?

A. The weight and construction of cars——

Q. Did you hear the very interesting history that Mr. Symons gave yesterday about the design of refrigerator cars on the Southern Pacific tearing up the tracks and derailing?

A. Yes, I heard his testimony and I also know of my own knowledge and that is an actual condition that occurs.

1088 Q. Are those conditions in any way provided for on an engine ton mile basis of dividing these expenses?

A. I don't believe they are.

Q. The theoretic train does not have any bad designing?

A. No, sir, a theoretical train operated to a 100% efficiency would never derail and could be entirely represented by the engine.

Q. Mr. Mayer, in the formula, Exhibit No. 1, at page 28-A—that division between local and through is on page 28-A?

Mr. Moore: That is 28-A, yes, sir.

Mr. Hill (continuing:)

Q. It is provided for dividing line freight between intrastate and interstate, as I remember it, between local and through trains, on the gross ton miles, and subsequently between state and interstate on the net ton miles: Do you recall that, or have you the formula there before you?

A. Yes, sir.

Q. In view of these studies that you have given to engine performance in the difference between a local and through, I wish you would express your opinion on the soundness of that division.

A. There are two or three factors that enter there on account of the apparent discrepancy between the actual loading of a train and the theoretical loading, as this exhibit No. 1 and the testimony would have us believe existed.

1089 In the first place, freight service would not and does not under the engine ton mile bear its proper proportion; that is, even assuming that the engine ton mile is right it does not bear its proper proportion, because these engines are not loaded to the same, or to 100% because of their potentiality.

Q. Nor even the same percentage of that potentiality, either, are they?

A. No, sir, they vary all the way from 44 and get up as high as 93. They might be, well, just an average condition, that is all. Now, just assuming that the engine ton mile is correct: We have the condition here of a local train and show 67% of its rating handled as compared with a through train with 90%. There are, of course, more through trains than there are locals, and it results in the local train either bearing too much or too little, as the percentages might vary, of its correct proportion.

Q. What effect would this empty car movement as between local and through that you have set forth in your exhibit CC have upon this?

A. In proportion to the loads there are more empty cars on the local than there are on the through.

Q. What is the effect of that on the ultimate division between state and interstate?

A. Since the percentage of intrastate on local trains is greater than the percentage of intrastate on through trains, the result is that the intrastate gets the burden.

1090 Q. Of carrying the larger part of the empty car movement?

A. Yes, sir.

Q. Carrying the empty cars is a dead expense?

A. Yes, generally, excepting in very isolated cases where the Company pays out a cent a mile for the movement of special cars, when it is a greater loss.

Q. The division there between local and through on gross ton miles would include the expense of the empty car movement, would it not?

A. Yes, sir.

Q. And the final division between state and interstate on the net ton miles would exclude it, would it not?

A. The net ton miles would exclude it.

Q. From your observation of traffic in the southwest where would you say was the larger proportion of empty car movement, in state or in interstate freight?

A. I presume it would be in interstate, naturally.

Q. Why?

A. Whenever there is any cotton movement it comes in a bunch, of course; they rush this cotton out and there is nothing moved back in it.

Take coal cars: There is another big interstate movement. Oil cars and refrigerator cars. That would apply to Oklahoma and Arkansas about equally, I mean with the same effect.

1091 Q. I think it is already in evidence here that so far as Arkansas is concerned cattle cars are practically all interstate?

A. Yes, sir.

Q. That is usually a specially equipped car, is it not?

A. Yes, sir.

Q. Would it not be true, generally, that all the special equipment cars are interstate, with probably negligible exceptions?

A. I think it would.

Q. Mr. Mayer, at page 38 of the formula there is an apportionment of property values to the state between classes of traffic. I will state it as I recall it: That the property is ultimately apportioned between state and interstate on the relation of the transportation expenses between state and interstate: Are you familiar with those apportionments?

A. Yes, sir.

Q. I wish you would state the value, if any, of that factor to apportion property between state and interstate.

A. There are two or three considerations there and the first one is that every erroneous theory which is used for the division of transportation expenses is cumulative and affects the division of property. In other words, if there is a wrong division between freight and passenger at a station, then the division between state and inter-

1092 state bears its part of that error.

Then, again, the theory—as it is rightly named—is that the property should be divided upon the dollar basis: That assumes that the dollar spent in freight business is just exactly as efficient as the dollar spent in passenger business.

Again, if the wages of a passenger ticket clerk are raised, the result of the application of this formula is that you assign more property to the passenger business, and naturally to the intrastate passenger business—that is, all kinds of property. There is no connection between the salary of a passenger ticket clerk and the right-of-way, and that shows the errors in the theory very plainly, to my mind. In other words, it is almost as bad a basis as the revenue basis.

The raising of any item of expense, the raising of wages, the raising of the cost of materials used in one class of service, puts more property valuation onto state or interstate business.

Q. It is in evidence here that there has been an increase in the wages of train men since 1907, but very little, if any, increase in the wages of the station employes, the laborers on the way and the various laborers handling cars—in other words, common laborers: What effect would the increase of one class of wages and no increase of the other class of wages have upon using these transportation expenses to divide the property?

1093 A. It would disturb the relation of the factors and then disturb the amount of property to be assigned to one or another. If, for instance, the wages of the passenger train men were raised, say even one-half of one per cent out of proportion to the raise to freight, then you would assign more property to passenger regardless of whether they had used it or not.

Q. Ultimately in assigning to the state and interstate, as the relations between passenger and freight, state and interstate, are so different between freight, state and interstate, it would materially affect the return upon the property shown, would it not?

A. Yes, sir.

Q. On page 29 of the formula the apportionment between line freight between intrastate and interstate by primary accounts under transportation, and the same would be true as to the question I am going to ask for the terminal—let me see what page that is on—on page 32. I presume that would be the same items, one in line and the other in terminal: Look and see if that is correct, commencing with yardmasters and going down to No. 93. It shows various items of wages, fuel and various sorts of trainmen and laborers. They seem to be apportioned on the respective state and interstate gross ton miles in the entire state on the first account, and on the passenger side of it on the passengers using the terminal. I will ask you if those bases are correct in your judgment, and if they

1094 are erroneous to any extent or in their operation, how would it affect this property division?

A. On page 29 accounts 67 to 78, inclusive, are divided on the state and interstate gross ton miles, over the entire system, and accounts 79 to 93, after being divided between trains are——

Q. That is modified, you know, by page 28-A?

A. Oh, yes, modified by 28-A. The expenses are assigned to through and local and then on the gross ton mile proposition. The result of that is that there being more empty cars on the local train than there are on the through train, and a greater proportion of interstate business on local trains than there is intrastate on through trains, the intrastate gets too much of the empty car movement, way out of proportion to what it actually uses, and that in turn by use of the transportation expenses for the assignment of property results in too much property being assigned to intrastate freight.

Q. Then every dollar assigned erroneously there would amount to $2.00 in the final result, would it not?

A. Yes, sir.

Q. On the expense side and one on the property side?

A. Yes, you get a dollar too much in your expenses, and you get

a dollar, or a relative dollar too much in valuation. The valuation inherits every error of the formula.

1095 Q. Take accounts 67 to 78, apportionment of respective state and interstate gross tons one mile in the entire state: Is that a fair way of taking those items and taking it on the entire state instead of taking it separately to the various yards and various engines, and localizing it?

A. It is very unfair to the intrastate traffic and results in burdening the intrastate with the interstate, for this reason: There is a whole lot of intrastate traffic that never uses these yards. In this manner, as set forth on page 29, an intrastate shipment say between Fayetteville and Winslow would have to bear some of the expense of operating the yard over at Harvard.

Mr. Moore:

Q. What accounts are you referring to?

A. Accounts 67 to 78 on page 29. This results in charging every ton of intrastate and interstate the same proportion of what they call "line freight" expense for those accounts regardless of whether the freight used those terminals or not.

Mr. Hill:

Q. If you are going to use that factor how should you get at it to be accurate and fair about it?

A. I did not understand.

Q. I say, if you are going to use this factor of a gross ton one mile in the entire state to divide this, how should you arrive at the expense in order to treat each class of freight fairly?

A. They ought to take the tons actually using these yards.

1096 Q. Instead of throwing it all in a pool?

A. Instead of throwing all the expense in a pool and charging out the intrastate business and interstate business.

Q. That same thing is true of station expenses, I believe, is it not. But they would not enter into transportation?

Q. Yes, I guess it will, and the same is true of station expense account 63 on page 29.

Q. I thought that would be on the maintenance of way side of it—yes, that is true.

Now take the passenger side of that, the other page I called your attention to—35, I believe, wasn't it?

A. Page 32.

Mr. Moore: What page?

Mr. Hill: Page 35, yardmasters, clerks, conductors and all those accounts.

Q. I would ask you to state whether you think they have been fairly divided, and if they have not, what effect would that have on the assignment of property?

A. That should be page 32, should it not?

Q. It was a corresponding account to the passenger——

Mr. Moore: Page 32 is the one you referred to a while ago.

The Witness: 32 is terminal passenger and the other is line passenger, is it not?

1097 Mr. Hill:

Q. What would be the corresponding account, Mr. Mayer, for the passenger side of it? You know the formula better than I do.

A. I will give it to you. It is accounts 67 to 78 on page 26.

Q. That is right.

A. That is another place where——

Mr. Moore:

Q. What accounts?

A. 67 to 78. That is the line passenger expense between state and interstate, and they do that here on this formula by separating the passenger and mail and express on the car foot miles, and the passenger proportion is divided on the state and interstate passenger miles in the entire state, and that means that an intrastate passenger traveling between two points not reached by a division point would have to bear some of the divisional expense charged in these accounts, even if it was two or three hundred miles away. It is a matter of charging intrastate business with the expense of carrying interstate.

Mr. Hill:

Q. That would double up, of course, just like the other which you have heretofore explained?

A. Yes, sir.

Q. By using that item of expense to divide the property——

A. Every time you charge more to intrastate than you ought to charge you add more property, according to this.

1098 Q. Take account 93 on that page "clearing wrecks:" What effect would a big wreck have on the property in the values in the test period?

A. It would just make it abnormal, that is all. The expense is charged out of a number of state and interstate passengers one mile and it would just make intrastate too high and then you get more property, just like the rest of them.

Q. Even assuming that all the expenses were properly charged, Mr. Mayer, why should the expenses of transportation be taken to divide the property between state and interstate?

A. They cannot be taken, for this reason: To assume that they can be taken means that there is a consistent relation between the passenger one mile and the ton of freight one mile. In other words, suppose we had the actual expenses of running a freight train, if it could be secured, and the actual expenses of running a passenger train, and suppose they were equal: The passenger train is run according to schedules widely published. If ten people get on that is its train load; if twenty get on that is its train load. On the other hand, the freight train is run according to the necessities of the business, that is, they don't run them unless they have to, and they try to get a full train load for them.

Q. They don't always succeed, do they?

A. They very seldom succeed, but they are run with a more nearly efficient train load than a passenger train, because they can
1099 wait a while until the load accumulates.

Now, you have this relation: If your freight train costs an equal amount to your passenger train, and your expense of handling the passenger train, we will say, is $20.00, and the number of passengers riding is twenty, then you have the expense at one dollar per mile.

In your freight train with an expense of twenty dollars you will have three thousand tons, or two thousand, then your expense will be one cent a mile. That shows up actually just what the relation is in the expense.

Here you have a train run for comfort, luxury and convenience. On the other side of the equation you have a train run up to efficiency. You cannot put any more business onto your freight train, if you fill it properly, whereas your passenger train has to run whether you have a half or a quarter train load on them.

Q. I have heard it frequently stated that passenger trains are run largely for advertising purposes. I don't know whether it would be radical to say that in a freight case or not, but is there more money spent on them in proportion to the money received from them than there is on the freight service?

A. Naturally, because you cannot load passengers into a car like you can freight.

Q. I have seen some of them pretty near it. But go on, Mr. Mayer, I did not mean to interrupt you.

1100 A. The money that is spent for passenger traffic caters to what might be called the intelligence of the traveler, and modern comforts and convenience. For instance, we pull a heavy sleeping car with from eleven to fifteen passengers in it because they want more room, but we take a freight car and we put from sixteen up to forty tons of freight in it without hurting anybody's feelings. In other words, on one side we are catering to efficiency, and on the other side to comfort and convenience.

Q. If Mr. Hamilton will allow me to plagiarize, that is comparing potatoes and apples.

A. It is the same thing.

Another thing, in using the transportation expenses alone, if there is any relation between the expenses of transporting and the value of property, it can be shown in an example of a farmer. Say a farmer bought a place for a given amount of money. He raises on it on one side cotton, and cattle on the other side. Their theory, as indicated in this formula, would be that that farmer would divide the value of the farm land between the land used for raising cattle and the land used for raising cotton on the expense of hauling the cotton and the cattle to market. It is just as consistent to divide that farm on that basis as it is to divide the value of railroad property on the transportation basis, because we are figuring transportation expenses in both instances.

1101 Q. Do not the President and the General Officers of the company have something to do with the transportation items?

A. Yes, sir.

Q. Under this formula none of the expenses paid to the president, or any of the general officers, enter into this as a factor for dividing property.

A. Insubordinate general officers, such, perhaps, as a general superintendent——

Q. I am speaking of the president of the road.

A. No, their expenses would not enter into this at all.

Q. And the legal department—I don't know where the claim department comes in; does that come in general expenses or not?

A. Part of it would, but none of those expenses would figure in this division.

Q. None of the traffic expense would figure in this?

A. No, sir.

Q. None of the maintenance of way expense?

A. No, sir.

Q. And none of the equipment?

A. None of that, either.

Q. I believe some of that maintenance of equipment would figure indirectly, but I will not go into that now.

Mr. Mayer, have you studied this division between line and terminal as made in this formula?

1102 A. Yes, I have given it some study.

Q. Have you given its application study and consideration, too?

A. Yes, sir.

Q. I wish you would express your views on the subject, in the first place, of how the line is drawn between the two, and secondly, how it is applied.

A. Upon the first reading of this formula a person not familiar with it would think that it was compiled in a way to compensate for what is actual terminal expense, but a knowledge of actual railroad practice, used in connection with reviewing the principles of this formula, indicates that what they call terminal here is only a part of the terminal expense. For instance, take on page 2, station D: There is not any difference between the handling of a shipment originating on the branch line passing through D, and on the foreign line passing through D, except, perhaps, an inspection of the car at that point if it is a carload shipment, but the physical handling is the same.

Under this formula all business passing through D from Branch line points is line, and all of the expense going to the foreign road or coming from it is terminal.

A great proportion of shipments are handled from main lines to branches for delivery or receipt, or vice versa, from branch lines to main lines.

If you have failed to consider the handling at D in its
1103 proper aspect as a terminal, then you have charged too much expense per shipment at "D" to those shipments which actually originated or terminated there.

The same thing with your divisional handling of cars: Take a

division point, and their definition of what is line and what is terminal expense results in charging to line the handling of a car through a divisional point. That is another way of carrying out the old idea of but one terminal.

Using "C" as a division point, if a carload is moved from "A," destined to "E," comes from "A" to "C" in a through train, is picked out there and put into another train or local train, it ought to be considered that at "C" the particular car had received a terminal handling, for the simple reason that the handling given that car at "C" (the division point) is just the same, or practically so, as if it was destined to an industry at that point.

Q. Mr. Mayer, in view of the fact that the average freight haul, intrastate, in Arkansas, is 25 miles, I believe, would the intrastate freight as a general thing receive any of this divisional handling?

A. A very, very small portion of it would, for the reason that you will find that the division points are about 100 miles apart, and if these shipments only moved 25 miles a whole lot of them would not go through a division point.

1104 Q. In fact, very few of them would, comparatively speaking, I suppose?

A. Very few would go through a division point unless that division point would be considered as its originating or the point to which it was destined.

Q. But where the average shipment is 25 miles and the average distance between divisions 100 miles, the intrastate passing through that would be negligible, would it not?

A. I think that could be fairly stated.

Q. Then the result of this would be that these divisional handlings, which you say are substantially the same as terminal handlings, are enjoyed by the interstate traffic and yet they are classified as line expense here and escape these terminal charges that are rolled up and doubled up against the intrastate?

A. That is correct.

Q. That is correct?

A. Yes, and when you spread it over the entire state it results in the intrastate bearing a burden of divisional terminals which it never saw and could not possibly go through.

Q. And ought to be borne by the interstate and transstate?

A. Ought to be borne by the interstate and transstate which use those divisional terminals.

Q. It is a very large item of expense, too?

A. It is a very considerable item of expense. That is only another way of loading up the intrastate with the interstate

1105 burden in this formula.

Q. I have interrupted you a little. Go on with your views in your own way.

A. Taking page 2 again: Suppose that a shipment of cotton originated at point "A", with a compress at point "B", destined interstate. That shipment ought to be considered as having one originating terminal at "A", one at "B" where it is unloaded, or where it is set into the compress; one at "B" where it is taken out of the

compress, and then another one outside of the state if it is an interstate shipment. In other words, if it is interstate it should be considered as having three terminal handlings in the state and an allowance made in the operating expenses as well as an allowance of revenue to compensate—if that theory is correct—for that handling.

Q. Would not all that cotton, or some of it, go through divisional points——

A. Yes, you can consider that point "B" as a terminal, and then you will have the following, which ought to be considered as terminal handlings from actual physical operation: One at "A"; one getting in at "B" and one coming out of "B"; one getting into terminal "D" and one coming out of terminal "D", and one outside of the state.

Q. Would the plan that is worked out here, counting the tons in and out, and packages in and out of those stations when they are handled, take care of those items of expense?

1106 A. No, sir.

Q. Why would it not?

A. In their division between line and terminal that is entirely precluded.

Q. In other words, that takes care of the station expense and things like that, but it does not enter into the line and terminal proposition?

A. No, sir. Take that yard expense, accounts 67 to 78, inclusive, on page 15: They divide between line and terminal on the time study proposition and then consider those cars which originated only at that place as terminal. That same proposition occurred in the handling of grain that is milled in transit, cotton compressed in transit, and lumber—milled, I presume is the word, in transit.

Q. Those are large movements in Arkansas and Oklahoma, are they not?

A. Yes, sir.

Q. I don't know what the percentage of them is now, but it would be a very material part of the traffic, would it not?

A. Yes, it would.

Q. Are there any other objections you see to that division there, Mr. Mayer?

A. Well, an illustration of what happens to a shipment in the matter of terminals occurs when a shipment from, we will say a branch line, goes through a junction with the main line,

1107 up the main line a way, then through "C" and then out on the branch line, compared to the terminals which would occur if the shipment originated on the foreign road destined, say, to the same point. They would charge but two terminal handlings on the shipment from the branch line to the branch line, compared to two handlings, one at "D" and one at the end of the other branch line on the foreign shipment, although the first shipment had the use of an additional terminal over the foreign line terminal.

Q. We can illustrate that in a concrete example: Take coal loaded on the Mansfield Branch and carried to Fort Smith, there delivered to the main line and carried to Fayetteville; then delivered to the

St. Paul Branch and carried to a saw-mill or industry on the St. Paul Branch: That would have all the handlings you refer to there theoretically, would it not?

A. Yes, sir.

Q. And which would be actual movements of coal to St. Paul.

A. That shipment, to my mind—that is an interstate shipment——

Q. Yes.

A. That has one terminal at Mansfield.

Q. It would not be at Mansfield but some point on the branch, Huntington.

A. It has one terminal at Huntington, one terminal into Fort Smith and one out; then it has a terminal at Fayetteville in
1108 and out, and then a final terminal at Pettigrew.

I can't find on this map a place where you would have an intrastate shipment on account of their average distance twenty-five miles going through so many divisional and branch line terminals. You might have one with two terminals through a branch line, such as one coming from Pettigrew to West Fork. That would have one terminal at Pettigrew and one in and out of Fayetteville, and at West Fork. That is four. That is the most it could have.

Q. That would not be an average shipment because that would be more than twenty-five miles.

A. What I am trying to bring out here is the fact that by putting up this erroneous division between line and terminal they have actually charged too much to terminal, and of course that affects intrastate more than it does interstate, and by not considering the right number of terminals they have increased that factor from what it ought to be—even in their own division—and by not considering the right number of terminals they have failed to give us enough interstate-revenue, by doing that, and they have kept down the cost of doing interstate business at the expense of the intrastate.

Q. It operates to that effect?

A. Yes, that is the actual operation of it.

Q. Is there any other criticism that occures to you at this time about that division between line and terminal, Mr. Mayer?

1109 A. There were a good many of them brought out on the cross examination of Mr. Hamilton.

Q. I don't care about the detail part of it, I mean just the general proposition.

A. You will notice that they have charged all of the traffic expenses to terminal. That is just ridiculous, too, to do that.

Q. What is that?

A. It is just ridiculous to do that; that is all that is the matter with it.

Q. Why?

A. If just handling the business through a terminal paid them anything it would be all right, but they make their money by the road haul. You don't make money in railroading by having stuff sent to a depot and standing there. That is the final analysis of

it—it is the transportation of it and the movement that gives them the money.

Q. Traffic expenses are sustained on the theory that they have produced traffic?

A. That is the idea, generally, of expenses of that nature.

Q. And all of the expense like the fellow going around the country advertising and soliciting business, getting circuses to come to Arkansas, and travel on their road, and all that class of business, is put in here as terminal expense?

A. Traffic expense, yes. That is another way of increasing the terminal cost, and, of course, since intrastate has two terminals it naturally leaves less net.

1110 Mr. Hill: I believe that is all.

The Witness Do you want to offer these as exhibits?

Mr. Hill: I don't care about putting them in unless Mr. Moore wants them.

Mr. Hamilton: Those are our file copy.

Mr. Mayer: No, they are not, you gave yours to Mr. Simpson.

Mr. Simpson: I have them.

Mr. Hill: I have no objection to it, but it is very voluminous and will just encumber the record. You have it and you can use it for any purpose you want. It is all in.

Mr. Moore: Let us have it.

Mr. Mayer: If it is not going to be filed as an exhibit, I would like very much to keep it.

(Here ensued colloquy.)

Mr. Moore: All I want it — is to use it in getting ready to cross-examine.

Mr. Mayer: Oh, all right.

Mr. Moore: At least I want an opportunity to examine it.

Mr. Hill: I supposed you had them.

Cross-examination.

By Mr. Moore:

Q. It is five o'clock but I will ask you a few questions now. When did you begin your railroad service?

A. In about 1900.

1111 Q. Where?

A. Up on the Burlington, north of Keokuk, Iowa.

Q. In what department?

A. Maintenance of way.

Q. What?

A. Maintenance of way.

Q. In what capacity did you act in the maintenance of way department?

A. I worked there day labor every summer for about five years.

Q. What do you mean by that, do you mean you labored out on the line?

A. Yes, sir.

Q. As a section hand?

A. Kept time, partly, and finally kept time and assisted the foreman in his accounts in reconstruction and ballast work.

Q. You say that began in 1890?

A. No, I said it began in 1900.

Q. I beg your pardon, I thought you said 1890. And you had been doing that work for five years?

A. Yes, sir.

Q. What part of the line were you on, what section?

A. Between Keokuk and Burlington.

Q. What is the distance?

A. It is about thirty-nine miles, extreme.

Q. Tell me just what duties you performed. I want to
1112 know just what you did during those five years.

A. I worked there as a laborer in regular section work at times, and finally when the road was reballasted I worked as a laborer there and was finally promoted to be timekeeper.

Q. When did that promotion occur?

A. What is that?

Q. When did that promotion occur?

A. Oh, that was, I guess, the third summer I was there.

Q. You say you worked there during the summer months?

A. Yes, sir.

Q. For how long a time, how many weeks, or days, or months?

A. Sometimes three months at first and finally all year.

Q. When did you begin to work all year around?

A. That was about the third or fourth year I was there, when I was timekeeper.

Q. So you were promoted to the position of timekeeper the third or fourth year you were there and prior to that you worked as a laborer on the track?

A. Yes, sir.

Q. How long did you work there as a timekeeper?

A. Well, of course, in the fall of the year we would go back to regular section work, and when the gangs were laid off—I suppose the total amount of time as timekeeper would be about six
1113 months, all told, about a year.

Q. You mean six months of the year?

A. About a year all told in the two years.

Q. What were you engaged in during the rest of the year?

A. Went back to regular section work.

Q. How old were you when you began that employment in 1900?

A. Twenty.

Q. Twenty years old?

A. Almost twenty, about nineteen, nearly nineteen.

Q. You say that employment as section laborer and timekeeper consumed five years?

A. Practically, yes.

Q. What were your duties as timekeeper?

A. Keeping the time of the gang.

Q. That is, keeping the time of the men that made up the gang?

A. Yes, sir.

Q. After the expiration of that what was your next service, what was your next service after that five years?

A. My next service was at Oskaloosa, Iowa, with the Iowa Central for a short time.

Q. What were you doing there?

A. I went braking up there and left there and went to West Burlington, Iowa, shops——

Q. Let us get through with that first: That was the Iowa Central?

1114 A. Yes, sir.

Q. In what department were you, a freight or passenger brakeman?

A. Freight.

Q. How long did you say you were on the Iowa Central?

A. I was working up there all told about six months.

Q. As a brakeman on the freight trains?

A. Yes, sir.

Q. Tell me the dates that that service began and ended?

A. I don't know whether I can give you the exact dates of that, but it was in the spring of, I think, 1906.

Q. In the spring of 1906 and ended, I suppose, sometime in the autumn or early winter of 1906?

A. Practically, yes, sir; the latter part of the summer.

Q. What next?

A. I went from there to West Burlington, Iowa, and worked in the machine shops of the C. B. & Q.

Q. What did you do there?

A. Machine helper for a while; laborer, then machine helper, and finally got a job in the office keeping time.

Q. How long were you engaged in that employment?

A. I was there until May 11, 1907.

Q. That was from the fall or early winter of 1906: Then where did you go?

1115 A. From there to Galesburg, Illinois.

Q. With what line?

A. The C. B. & Q. Division Superintendent and Chief Dispatcher's office.

Q. Wait a moment.

A. In the Chief Dispatcher's office and Superintendent's office I handled car distribution, tonnage and work of that kind; general clerical work around both offices. I stayed there until June 15, 1908.

Q. A little over a year——

A. From May, 1907, to June, 1908.

I went from there to the Chicago and Alton at Bloomington, Illinois.

Q. What did you do in connection with that road?

A. Well, I did similar work there when I went over there and finally got up pretty well along in the Chief Dispatcher's office, and during the rush period was sent to Springfield, Illinois, acting as assistant trainmaster. I came back to Bloomington in the spring of 1909——

Q. Wait a moment, I want to get those dates. How long were you in that employment before you were sent to Springfield as an assistant?

A. Four or five months. I don't remember just what the date of it was. That was only during the congested period.

Q. How long were you assistant superintendent?

A. That was just during the winter. In the spring of 1909 I came back to Bloomington and there was a change made
1116 in the entire maintenance of way department on account of a reduction of expenses, and the engineer of maintenance of way was let out and it was handled by the superintendent at Bloomington, that is, the maintenance of the whole line. I was given the job as taking care of the maintenance of way end.

Q. Wait a minute. I want to know what you did in connection with that job?

A. I handled all of the maintenance of way and bridge and building work——

Q. In what way?

A. Just the same as the engineer of maintenance of way would have done had he been there. Of course, there was a good many——

Q. Did you plan the work?

A. It was planned, yes, sir. There was very little going on. The most of it was keeping down the expenses of maintenance.

Q. I would like you to tell more in detail what you did there. I want to know that.

A. We had six roadmasters, I think, four in Illinois and two in Missouri. These roadmasters previously had reported to the engineer of maintenance of way with reference to the work, as to what should be done and what could or could not be done, the expense of doing the work and the authorization for it. All of that was handled through the superintendent by the general manager. I handled a good bit of that.

1117 Q. What part did you have in it?

A. I was charged with the responsibility of all of it, but, of course, in a good many instances, I took the matters up with the proper authorities.

Q. What was your position or title?

A. I don't know, I did not have any particular title. I was acting as head of the maintenance of way department and was in that position when I left the Alton.

Q. Were you a civil engineer?

A. No, sir, I was not.

Q. What qualification did you have, or what experience did you have, for discharging the labors incident to that position?

A. The experience I had was composed of my service, I presume, on the Burlington, and I went there——

Q. What services had you been engaged in that would qualify you to discharge the duties of superintendent?

A. I did not discharge the duties of superintendent.

Q. You said you were at the head——

A. I said matters all came there directed to the superintendent and

they would be given to me, and sometimes consulting and sometimes not as to what was necessary, I would handle such matters.

Q. Did you not go out and handle such matters as you were directed to do?

A. I presume I obeyed the orders that were given me, yes. If I had not I would not have stayed there as long as I did.

1118 Q. Did you prescribe the duties of the roadmaster in track maintenance, did you lay out that work and tell them what to do?

A. Their duties for that were prescribed previously, but when any orders would be made they came to us and I ordered the material that was necessary. You understand that very little expenditure is made on a road of that size without being approved, ordinarily, by the general manager; handled over the name of the superintendent, also.

Q. Did you direct the number of ties that should go in the track?

A. That came through that department.

Q. Did you determine that, did it originate with you?

A. No, sir, not entirely.

Q. You were given instructions and transmitted those instructions——

A. In some instances, yes.

Q. —to the men in charge of the work?

A. Yes, everything came direct from the general manager up there as it does on all lines.

Q. You were acting in the capacity of kind of a clerk?

A. Yes, you can call it that, anything you like.

At this point adjournment was had until Friday, October 30, 1914, at 9:00 o'clock in the forenoon.

1119 LITTLE ROCK, October 30, 1914.

Met pursuant to adjournment as above on Friday, October 30, 1914, at 9:30 o'clock A. M.

The following proceedings were had:

Cross-examination of Mr. Mayer resumed.

By Mr. Moore:

Q. You went to the Chicago and Alton Railroad at Bloomington in the spring of 1909, I believe you said?

A. No, sir, I said 1908—whatever the record shows.

Q. 1909, is what you said yesterday.

A. It should have been 1908.

Q. Perhaps it is 1908. How long were you engaged there?

A. I left there, I believe it was the first of May, 1910—the 30th day of April, 1910.

Q. In whose office were you? Where did you have a desk, or where did you work there?

A. I had an office of my own, that had been previously used by the engineer of maintenance of way. But that office was discontinued for the sake of economy and the maintenance of way handled through

the superintendent of the eastern division. Then when the office was discontinued I was put in that series of rooms and did as much of that work as my ability permitted me to do.

Q. What other work did you do?

A. None other. I was right there.

Q. Who did you report to?

1120 A. In accounting matters to the general auditor and in the usual work to the superintendent.

Q. Didn't you report to the chief clerk?

A. No, sir, I did not.

Q. You reported to the superintendent, did you?

A. Yes, sir, to the superintendent.

Q. Who was the superintendent?

A. J. W. Mulhern.

Q. I believe you said there were six sections——

A. No, sir, I didn't say that.

Q. I understood so.

A. You understood wrong.

Q. Roadmasters, I mean.

A. Yes, sir.

Q. Each one of those had charge——

A. Of a certain department, yes.

Q. And they had charge of the work done in that district and of those who did the work?

A. The usual roadmaster's duty, yes.

Q. And during this time the additions, and work in that way, was discontinued for the sake of economy?

A. No, sir, I didn't say that.

Q. What did you say?

A. I said the amount of additions and betterment work was reduced on account of economy, but I didn't say it was discontinued.

Q. It was reduced on account of economy?

A. Certainly.

1121 Q. The work along the line was in charge of those foremen you spoke of awhile ago?

A. As is usual, yes.

Q. Tell me just what duty you did discharge? I want to know the details of it.

A. As had been customary in the past, the roadmasters necessarily had to report to some head of the maintenance department, as did also the bridge and building department foremen. They were expected to carry out the orders of the management. These orders commenced generally in the president's office and were transmitted down through the vice-president, through the general manager and finally to the superintendent. When these orders were received by the superintendent they were in turn transmitted and handled by me to the different roadmasters; sometimes in the name of the superintendent and sometimes not.

Q. What were those reports that came to you from these foremen?

A. All reports that the roadmasters made came to me.

Q. What were they?

A. All section reports of labor and material, the condition of the tracks, requests for material and supplies and so on.

Q. What did you do with those reports?

A. They were in my office and were compiled in such shape as was necessary.

1122 Q. What did you do with them?

A. Personally——

Q. I know, but who acted on them, if any action was taken?

A. Such action as might be necessary.

Q. What was the purpose of making these reports?

A. To report the cost of operation.

Q. For your information solely?

A. Absolutely not. For the information of the management.

Q. What did you do with these reports?

A. After we checked them and were satisfied with their accuracy and had compiled them and made other reports, they were transmitted.

Q. To whom did you make other reports?

A. Reports were made to the Auditor's office for accounting matters and to the Engineering Department or Additions and betterment work, where it affected the property.

Q. What did those reports consist of?

A. They consisted of reports of expenses for material and supplies to the auditing department. And of material used in its completed condition to the engineering department.

Q. Those reports came into you and you put them in form and sent some to the Auditor—and to whom did you send others?

A. I said to the engineer. That was a part of my duties,

1123 or to see they were done right, rather.

Q. Mr. Mayer, weren't those reports simply transmitted to you to put in shape and send on to the different departments?

A. Absolutely not.

Q. What did you do? Did you make orders for material and labor?

A. It was done under my direction.

Q. Who did authorize those things to be done?

A. As is usual on all railroads, the subordinate officers simply carry out the directions of their superiors. These orders were carried out, the same as they are carried out on other railroads today. That is, we were auditing the detail, as might be necessary in each instance.

Q. Give me in detail what they were, please.

A. Suppose it was determined to relay a certain amount of rail. Of course, that was done on A. E. F. authority.

Q. What do you mean by that, "A. E. F."

A. A request for authority for expenditure.

Q. Who authorized that?

A. Just a minute, please. I am giving you the detail as it is handled on all the railroads.

Q. I want the detail of what you did.

A. When it was found it was necessary to relay rail—for in-

stance, through accidents, or such causes as might be necessary, the request for such authority was made by the road-master and that came to me or the department of which I had charge.

1124 They would be compiled in the required form and transmitted to the superintendent, who in turn transmitted it to the general manager. Then it would be sent to the New York office and authorized as usual, and when the authority was given and the approved A. X. F. was returned to the president's office and from the president to the vice-president and from the vice-president to the general manager and then from the general manager to the superintendent, and finally to me, in order that it might be carried out. In turn each official, subordinate, of course, to the Board of Directors, who authorized work of that nature, carry out and merely carry out the orders of their superiors. It is nothing but merely a clerical operation all the way through, from the president down to our office.

Q. Who makes the request for rail and other supplies?

A. I think generally it is done by the Board of Directors.

Q. That would be sent to you and by you transmitted to the proper officials above you and they determine whether it is necessary or if the request should be complied with?

A. They determine whether at that time they have the amount of money to do it.

Q. All you had to do was to receive those reports and sent them on up, and receive instructions and give orders in connection with the instructions received?

A. That is part of it.

1125 Q. Did you have authority to determine whether or not rail should be laid?

A. No, sir, no one but the Board of Directors has that authority, unless in case of accidents.

Q. Do you mean to say they call a meeting of the Board of Directors every time rail is laid?

A. No, sir, you are now getting down to the ridiculous. They do not get that authority from the Board of Directors when a few rails are to be laid, but in a case of new rail they do.

Q. Was your duty there mostly clerical?

A. In answer to that I will say it had the same relation to being clerical as the usual superintendent's duty has of being clerical. That is, it is merely carrying out the orders of the superior officers, and auditing such detail as might be necessary in the actual work.

Q. The superintendent usually discharges his duties in the various departments through the agency of clerks and persons employed for that purpose. A superintendent cannot himself keep in direct personal contact with every department.

A. He has to have others assist, him, certainly.

Q. Wasn't your work there simply as kind of a clerk to the superintendent in that part of his work, that relating to maintenance of way?

A. No, sir, I will say not, in my opinion. You might turn

around and as reasonably say that a superintendent was
1126 merely the clerk of the general manager, and I wouldn't agree with you in that.

Q. Whatever you did, you did under the direction and authority of those above you?

A. That is always the case with railroads, until you get to the Board of Directors.

Q. I am not asking you about that, but I am asking you particularly what you did in that direction.

A. If you asked me whether I obeyed orders, I will state yes.

Q. You didn't take the responsibility for getting the orders?

A. No, sir.

Q. Did you authorize the laying of rail without the authority from those above you?

A. In such case as my work or the authority given to my office permitted. In other words, we couldn't go ahead and order the laying of rail, or the relaying of a hundred miles of track, but if we needed two or three rails, say, or any minor job, we were permitted to go ahead and do it without authority.

Q. Didn't the requests come in through these roadmasters, through your office, for such supplies as they needed?

A. These requests for material commenced with the section foreman and were by him turned over to the roadmasters and then to us.

1127 Q. And then sent by you to those above you?

A. In minor cases we went ahead and handled the work.

Q. What do you mean by "minor cases?"

A. In a case of relaying an entire division, it would not be handled in our office.

Q. A moment ago you said "we would direct it." Whom do you mean by "we?"

A. My office.

Q. Would you consult with the superintendent?

A. Not on usual matters.

Q. Tell me just what you mean by that? An order would come in for a requisition of material and supplies: Would you act on it without consulting with the engineer?

A. We had no engineer.

Q. I mean superintendent.

A. Yes, sir, except in cases where the amount involved was too great in my judgment to permit the handling of it without an A. E. F.

Q. When a roadmaster sent in a requisition for a small amount of material you approved it and would have what was necessary to be done in order for him to get it done? Is that what you mean?

A. It depends on how small it was. The usual operation was naturally through me. Anything greater was not so handled.

Q. Where were you personally during most of this time? You say your office was in Bloomington. Where were you
1128 personally?

A. All along the line, generally.

Q. What did you go out on the line for?

A. On my usual duties. Sometimes accompanied by the superintendent and sometimes alone.

Q. What were those duties—you see we don't know what the usual duties are: What were the duties you preformed?

A. For instance, if we wanted to open up a new ballast pit, it was my duty to accompany the roadmaster there and in my judgment determine whether it was feasible or practical to open up the pit—and things of that kind. Before we would make a requisition for any extensive amount of material I would investigate the necessity for it. In some instances it was done by the Chief Engineer, if too big a job.

Q. Referring to the gravel pits you mentioned: Did you have the knowledge and qualifications necessary to enable you to determine whether it would be advisable to open a gravel pit; whether there was a likelihood of there being a suitable formation there to enable you to do that? Did you pass on that or on the character of the gravel?

A. No, sir. Of course, matters of that kind would be previously determined by tests made.

Q. Some one else would determine that. Then what did you do?

A. I determined the feasibility of opening the pit at a particular time.

1129 Q. What did the feasibility depend on?

A. On the relative cost, perhaps, of getting the gravel out and of moving it out after it was once dug or dredged, as the case might be.

Q. What experience have you that would qualify you particularly to determine those matters?

A. I presume my knowledge of operation and maintenance combined together permitted me to know the details of a job of that kind.

Q. Did you ever relay rail while discharging those duties?

A. I did not.

Q. Was it done under your direction, or under the superintendent's direction?

A. There was rail relayed during that time.

Q. What part did you, personally, fill in that?

A. I did not personally lay the rail.

Q. I understand that.

A. But in determining the necessity for relaying the rail, and handling the detail of relaying it, such as ordering drains, etc., arranging for men, and finally the accounting for it, all was handled under my direction.

Q. Did you determine that the rail was to be relayed?

A. That was determined by the standard in the engineer's office, as is always done on railroads.

Q. Did you determine the weight of the rail to be used?

1130 A. Yes, sir. Most of it was taken from the main line and laid on the branches. But the fact that it should be relayed on the branch lines was determined by the Board of Directors.

Q. What I want to get at is this: Was the question of the weight of the rail to be laid, or relayed, determined by you? Whether 70 pounds or 90 pounds rail was to be used?

A. On recommendation it was transmitted right direct from the roadmaster clear through to the Board of Directors, who finally determined whether or not it should be relayed.

Q. You don't mean that where you wanted to relay a little patch of rail it had to be passed on by the Board of Directors?

A. I mean in case of an accident, no. But in a big job, yes, it was all determined by the Board of Directors, as is always the case on railroads.

Q. In the smaller jobs, did you have to determine as to the weight of the rail that was to be laid on a given piece of track?

A. In minor cases the weight of the rail replaced is that which exists already on the line. But I spoke of changing the weight of rail throughout an entire district.

Q. Tell me in what manner you really exercised discretion and acted on your own judgment. Tell me the particulars of that.

A. In the matters I have explained, the details which had
1131 to be handled, such as ties——

Q. You say large matters go to the Board of Directors and small matters are determined by the roadmaster.

A. I did not say "determined" by the roadmaster. I said that large matters are handled by the Board of Directors, as is usual in all railroad operation. And that small matters are handled through our office. We never change the standard of rail without going to the chief engineer.

Q. If it were necessary to do some little work in some place it would come to your office, and, as a matter of routine work, the order would be given to have the material furnished and the work to be done. Wasn't that simply a matter of routine, such as any clerk would do?

A. No, sir, I wouldn't say so, any more than the work done in the superintendent's or the general manager's office would be clerical work.

Q. Is not the weight of rail and track conditions determined in the chief engineer's office?

A. Yes, sir, and the Board of Directors act accordingly.

Q. Have you had any training or knowledge as an engineer?

A. No training through any institution, but in the course of my work, naturally being of an observant nature, I am able to learn a good bit of practical railroading without mixing theoretical conditions with it.

Q. Could you take a transit and go out and set grade
1132 stakes?

A. No, sir. That would be the duty of an engineer.

Q. Do you know anything about determining the elevation of curves?

A. No, sir, that also would be the duty of an engineer and is never handled below that department.

Q. Have you sufficient knowledge of engineering to determine

how many cross section types of rails are laid by the railroads in this country?

A. That would be a matter to be determined by the chief engineer.

Q. In other words, you do not profess to have any knowledge to enable you to have charge of maintenance of way?

A. No, sir, I claim to have sufficient knowledge of maintenance—or at that time I had—without having had any theoretical training.

Q. Don't you know there are two of those types, that of the American Society and of the American Association standard?

A. I know that, absolutely.

Q. What is the difference between them?

A. The difference, of course, is a matter of technical construction, but the A. R. rail is much higher. However, I do not profess to be an engineer, and the determination of a matter of that kind would be determined by the chief engineer's office.

1133 Q. Isn't that knowledge familiar to men in maintenance of way?

A. No, sir, it is not. Never in maintenance of way. That kind of knowledge is always possessed and used by the chief engineer.

Q. Mr. Mayer, weren't you really while you were there simply a maintenance clerk in that office?

A. No, sir, I was not a maintenance clerk in that office, and my letter of service in that Company absolutely says otherwise.

Q. Who was the chief engineer of that road at that time?

A. Mr. Taylor.

Q. Did you know Mr. Jonah, the present chief engineer of the Frisco?

A. I know him now.

Q. Was he connected with that road at that time?

A. No sir, he was not connected with that road at that time.

Q. How long did that service continue?

A. I left there about the 1st of May, 1910.

Q. Where did you go then?

A. To the M., K. & T. of St. Louis, in the President's office. I stayed there until, I think it was August 26, 1911.

Q. What did you do with the M. K. & T.?

A. In the president's office of the M. K. & T. it was my
1134 duty to analyze all statistical statements that were made which dealt with all phases of railroad operation, and write such letters, to be approved and signed by the president, concerning a part of operation and maintenance, as I thought needed correction.

These letters were always written by me and then signed by the president, and—anticipating your question, I will say that no letter went out of that office pertaining to operation that was not personally handled by the president.

My detailed knowledge of operation and maintenance was such that in his judgment I was employed to do this particular work.

Q. You were a kind of statistical clerk, then?

A. I wouldn't say so, no, sir; for this reason: That is more along the line of filing statistics, whereas my duty was analyzing statistics with reference to operation and maintenance.

Q. What did you do when you left that road?

A. I left there, I think on the 26th of August, 1911, and was employed in the Accounting Department of the same line, in St. Louis, to December 31, 1911, acting in the capacity of Auditor of Disbursements, being carried on the payroll as Chief Clerk of Disbursements. The reason was that at that time they did not have an auditor of disbursements, and had not had one for two or three years.

Q. What were your duties?

1135 A. Of a general disbursing department nature.

Q. Then where did you go?

A. I went from there to the Corporation Commission of Oklahoma where I am still employed.

Q. I do not recall the dates you gave. What date did you go to the M. K. & T.?

A. I went there soon after I left the Alton. I think a month. But I am satisfied I went there about the 20th of May, 1910.

Q. How long did you remain in the president's office?

A. From then until the 26th of August, 1911.

Q. Who was the president of the road at that time?

A. Mr. Allen.

Q. Who was his chief clerk?

A. He had no chief clerk. He had a secretary.

Q. Who was the Secretary?

A. Mr. Hickok. He was a man who had had no real operating experience but had been Mr. Allen's private secretary for years.

Q. Are you certain the President had no chief clerk? Are you positive about that?

A. This gentleman acted as chief clerk and secretary both.

Q. To whom did you report, to the president direct, or to the chief clerk and secretary?

A. Everybody in the president's office naturally reported to

1136 the Secretary. He was recognized as the head of that office—if that is what you mean. Of course, the president was the actual head.

Redirect examination.

By Mr. Hill:

Q. Mr. Moore seems to question your ability to hold down a maintenance of way job: Have you any letter from your general manager on that subject?

A. Yes, sir.

Q. I wish you would hand it to Mr. Moore and then read it into the record.

A. The letter reads as follows:

"Toledo, St. Louis & Western Railway.

Chicago & Alton Railroad Company.

P. H. Houlahan, General Manager.

CHICAGO, March 8, 1910.

To Whom Presented:

This is to certify that Leon S. Mayer has been employed on the Chicago, Burlington & Quincy Railroad, and on the Chicago & Alton, for the past five years.

He is a young man of good habits and what I consider an unusually competent man in the operating and maintenance of way department, and I can cheerfully recommend him to any railroad or railroad officer who is in need of a first class man.

He has had full charge of maintenance of way and bridge and building departments during the past two years on the Chicago & Alton Railroad and is able to fill a better position than the one he now occupies.

Yours truly,
(Signed) P. H. HOULAHAN."

1137 This letter has stamped upon it:

"T. St. L. & W. R.
Chicago,
Mar. 8, 1910.
Office of General Manager."

Q. Mr. Mayer, what have been your duties with the Corporation Commission?

A. My duties with the Corporation Commission of Oklahoma have been to prescribe cost accounting systems for the several kinds of public utilities of Oklahoma. To receive, check, and thoroughly understand, if possible, the reports rendered by the several utilities, which, of course, includes railroads, in order to prepare myself for rate cases and general railroad supervision such as is exercised by the Corporation Commission of Oklahoma.

In the course of my employment I have been consulted many times by the members of the Commission, in determining the policy and methods to be pursued in the regulation of utilities, including railroads, in Oklahoma.

Q. Your duties are to advise with the Commission on the accounting departments of the railroads and other public utilities whose questions are before the Commission?

A. Yes, sir.

Q. How long have you acted in that capacity?

A. Since January 1, 1912.

Recross-examination.

By Mr. Moore:

Q. Do you have charge for the state in the rate litigation
1138 in Oklahoma?

A. The Attorney-General is designated by law as having charge of all litigations.

Q. I mean, insofar as an employe of the Commission would have charge of the getting up of evidence and so on?

A. Yes, sir, absolutely.

Q. And you do what you can in the way of assisting in working up the state's side of those cases?

A. Yes, sir, in assisting the Attorney-General.

Q. And you have made a study of rate matters from that standpoint?

A. A part of it, yes.

Mr. Hill:

Q. In making a study from any standpoint wouldn't you have to make a study of the entire problem?

A. Yes, sir.

Mr. Moore: We will recall Mr. Mayer later for further cross-examination.

Witness is temporarily excused.

1139 LESLIE N. SIMSON, a witness of lawful age, being duly produced, sworn, and examined, testified on behalf of the defendant, as follows:

Direct examination.

By Mr. Hill:

Q. State your name, age, residence and occupation.

A. Leslie N. Simson; age, forty-six; occupation, Certified Public Accountant, resident partner in St. Louis of Haskins & Sells, Certified Public Accountants; residence, St. Louis.

Q. Are you a member of the firm of Haskins & Sells?

A. Yes, sir.

Q. How much experience have you had as an accountant, Mr. Simson?

A. My experience in accounting dates from September 1, 1886, at which date I entered the employ of the Exchange National Bank of Seneca Falls, New York, the place of my birth.

In November, 1890, I entered the employ of the Kansas City, Fort Scott & Memphis Railroad, in the Accounting Department, in Kansas City.

Q. In what capacity?

A. My first work was as clerk upon freight statistics.

Very shortly thereafter I took charge of this branch of the work—in a very few months.

From that I changed to interline freight settlements, on
1140 which I was engaged probably two years. I am not sure of the date of some of these minor changes, or of the term of them.

Then I took charge of the station accounting, in the general offices.

After a considerable term in that branch of the work, probably two years or perhaps more, I became a traveling accountant, and as such checked and verified at the stations the accounts of the station agents.

I think it was in 1898 I temporarily left the employ of the Fort Scott road to become chief clerk to the Auditor of Receipts of the then Kansas City, Pittsburgh & Gulf, now the Kansas City Southern.

After about four months' service there I returned to the Fort Scott road, of my own volition, and entered the Comptroller's office. My work in the Comptroller's office at first was in the compilation of the annual reports of the railroad to the Interstate Commerce Commission. Following that I started but did not finish, on account of adverse weather conditions, an inventory of all of the maintenance of way material on the line and in the various storehouses. I then took charge of the preparation of the Company's bills against other railroads and individuals, for all sorts of matters in which these other companies and individuals were in the debt of the Fort Scott road.

Then for a short space of time I was engaged upon the analysis
work of construction and expense accounts, showing the
1141 refinements in detail of the operations.

Following this I took charge of the general books in the Fort Scott office of the Kansas City, Memphis & Birmingham Railroad, and the Kansas City & Memphis Railway & Bridge Company.

After a few months I became the general bookkeeper in charge of the books of the K. C. F. S. & M., the Kansas City, Clinton & Springfield, and the Current River Railroad Company, with supervision over the work of the man who took my place on the Kansas City, Memphis & Birmingham, and the Kansas City & Memphis Railway & Bridge Company books.

In July, 1901, I left the railroad and entered the employ of Haskins & Sells, as an assistant accountant. Through promotion I became a senior accountant, after an experience of some few months. During this period and up to July of 1904, this work took me generally over the country, in the examination of the accounts of railroad companies, commercial institutions—in fact, nearly all lines of business.

Q. State the general nature of the business of Haskins & Sells.

A. They are certified Public Accountants and devise systems of accounting and do all other work of a general accounting nature.

Q. What railroad work does that firm do?

A. Our engagements are always considered as confidential
1142 matters. We have no objection to stating them where the railroad company makes it public through the publication of our certificate.

Q. I don't mean individual clients, but what is the general nature of the work you do for railroad clients?

A. The verification of the financial reports of the railroads, usually at the end of the fiscal year, so that aside from the regular report of the railroad company as published, it may contain an independent verification.

Q. Proceed with your statement.

A. In 1904 I took charge of the office of Haskins & Sells as its manager in St. Louis. I remained there until November, 1905, when I was transferred to New York to enter upon the then large insurance investigations. My work in that connection was in a revision of the methods of accounting and the general method of business of the Equitable Life Assurance Society. I was engaged on that until July 1, 1908.

On that date, July 1, 1908, I entered the employ direct of the Equitable Life Assurance Society, in charge of a department known as the "Bureau of Insurance" which handled the issue of the policies and their settlement at maturity, either by death or expiration of time; the policy loans; and practically all of the activities of the policies except the collection of premiums and their accounting, and the payment of dividends and their accounting.

On the 15th of January, 1912, I returned to Haskins &
1143 Sells to become a partner in the firm, and took charge of their business again in St. Louis.

Q. And you have continued in that capacity since that time?

A. To this date.

Q. During your connection with the firm of Haskins & Sells has your work been dealing with railroad accounts?

A. Yes, sir.

Q. I believe you stated that you have no objection to stating the services you have rendered to the roads where they publish your auditing certificate.

A. No, sir.

Q. I wish you would mention some of the roads you have audited or assisted in auditing, and particularly those where you have had personal charge.

A. The Louisville & Nashville, in 1905, I think it was. The Central of Georgia in 1904—I am not sure of that date. I am not positive that the others have published our certificates.

Q. The only point I wish to make is that you have done considerable personal work in auditing railroad accounts?

A. Yes, sir, I have.

Q. Under employment from the railroad companies?

A. Yes, sir.

Q. Your firm has been employed by the state in the rate matters to investigate the data and act generally as its account-
1144 ants, has it not?

A. Yes, sir.

Q. Has the work done in this case been done under your direction or supervision?

A. Personally, yes.

Q. Have you examined the formula and exhibits filed in this case by the railroads?

A. Yes, sir.

Q. And made a study of them?

A. Yes, sir.

Q. Have you prepared a series of exhibits in this case?

A. Yes, sir.

Q. Take those up in order now beginning with the exhibit which we will file as Exhibit A.

A. The first matter I will take up is the question of unit costs, line and terminal, as applied to freight and passenger.

The railroad company, through the application of its formula, has attempted to compensate for the expense in terminals by an extra allowance of revenue to the states in which the terminals are situated.

Q. By "terminal" are you referring to the terminals as defined on page 3 of Exhibit 1, being the formula introduced by the railroad, which defines "terminal" expenses as being such as are incurred in originating, terminating and handling traffic at stations and to and from trains on which transported, including the
1145 reception and delivery of traffic interchanged with foreign lines, also transferring cars, freight and passengers, at junction points with foreign lines?

A. Yes, sir. The station at which the Frisco Railroad first handles and last delivers the freight or the passenger.

Q. And they include in that the reception from or delivery to a foreign line?

A. Yes, sir.

Q. This term is used so varyingly that I wanted to make it clear how you used it in this exhibit.

A. Yes, sir.

Q. Proceed with your explanation.

A. I first analyzed the railroad's method of computing this cost per ton for terminal and this cost per passenger for terminal service.

I found this was done by taking the statistics of operating expenses assigned to Arkansas, divided by the Company between line and terminal and freight and passenger, and adjusted by them in its Exhibit 10 to allow for the cost of non-revenue service as between freight and passenger, line and terminal; and further adjusted by excluding the mail and express proportion as computed by them, resulting in expenses for revenue traffic divided between line freight, line passenger, terminal freight and terminal passenger, as shown by several exhibits; some in Exhibit 11 and some in Exhibit
12. But the total of the expense so assigned equaling the
1146 total operating expenses assigned to Arkansas amounting to $544,378.83, as shown by the Company's Exhibit 7 at page 3.

In the Company's Exhibit 7, at page 3. it shows that the operating expenses for the months of November and December, 1913, for the entire line were $5,215,791.43. Of this amount there was as-

signed to Arkansas $544,378.83, this amount being in agreement with the distribution between line and terminal freight and passenger, mail and express, as I have just previously testified.

In Company Exhibit 6, at page 2, covering some statistical information which shows the passengers handled in Arkansas, revenue passengers intrastate 217,909; interstate 148,978; trans-state 8,140, or a total of 375,027. And of non-revenue passengers 23,184. Making a grand total of 398,211.

In this same exhibit 6, on page 2, it shows revenue passenger miles 9,895,424; non-revenue passenger miles 1,366,306; or a total of 11,261,730.

The same exhibit at page 5 shows, net tons of revenue freight received and forwarded in Arkansas, intrastate, carloads 116,219; less-than-carload 11,247; a total of 127,466.

Interstate, carload 283,450; less-than-carload, 29,753; a total of 313,203.

The total of intrastate and interstate being 440,669.

Net ton miles of freight trains in Arkansas, as shown by
1147 Exhibit 6 on page 1, for revenue freight, through trains 37,333,159; local and mixed trains 9,319,741, a total of 46,652,900.

Non-revenue freight, company material, 7,685,381.

A total of revenue and non-revenue of 54,338,281.

Now, the Company in computing its line freight charge per ton mile divided the line freight expense of $217,279.06 by the net ton miles of revenue freight, 46,652,900, which gave a rate of 4.65 mills plus, per ton.

For line passenger it divided the line passenger expenses, $122,856.67 by the revenue passenger miles 9,895,424, which gave a rate per passenger mile of 1.242 cents.

For terminal freight it divided the terminal freight expenses $137,221.43 by the tonnage of revenue freight handled, 376,936, which extended gives 36.404 cents per ton.

The Company used, however, 36.486 cents.

Q. There is a very small difference in your computations there.

A. That is not ours, but their computation.

Mr. Moore:

Q. What is the difference between those two.

A. It would be 82/100 of a mill.

Mr. Hill:

Q. That difference there, as I understand it, cuts no figure in this matter.

A. No, sir.

Q. There is no stress upon that?

1148 A. No, sir.

Q. That is just brought out in the accuracy of the matter?

A. Yes, sir.

Q. Proceed.

A. The total of revenue freight handled, 376,936, is arrived at by the Company as follows:

Intrastate freight forwarded and received as per Exhibit 6, page 5, shows 127,466 tons.

As the definition of received and forwarded covers the tonnage handled by stations, and as each ton of intrastate freight is handled twice, the tonnage moved is one-half of this amount or 63,733 tons.

Interstate freight, forwarded and received, has only one handling in Arkansas and, therefore, is expressed by the full tonnage handled, as shown in Exhibit 6, being 313,203 tons. That gives a total of 376,936 tons.

In terminal passenger the Company divided its terminal passenger expenses by the number of revenue passengers handled, 366,887, which would equal 8.677 cents per passenger.

The number of passengers handled, as computed by the Company from the statistics and exhibit 6 is as follows:

Intrastate passengers transported, 271,909; interstate passengers, 148,978; a total of 366,887.

We found this method of computing to be incorrect in
1149 some respects—not, however, as to the computation of line freight per ton mile or line passenger per passenger mile.

Mr. Moore:

Q. You mean mathematically incorrect?

A. No, sir, the method.

In the terminal freight the Company has computed and used a rate of expense per ton but has applied it as if it were a rate of expense per ton per terminal.

Now, the correct method of computing this factor as it is applied in the revenue allowance would be as follows: The factor that is incorrect is in computing the number of tons in Arkansas that used terminals. All of the intrastate freight forwarded and received in Arkansas used two terminals. Therefore, if 63,733 tons used two terminals, twice that number used one terminal. The interstate freight used only one terminal. That is, either a receiving or a delivering terminal. Therefore, the intrastate freight counted twice, or 127,466 plus the tonnage of interstate freight counted once, 313,203; or a total of 440,669; divided into the terminal freight expense of $137,221.43 equals 31.139 cents per ton per terminal.

The same kind of error has gone into the computation of the terminal expense per passenger. The expense is computed per passenger but not per passenger per terminal, as the factor is used.

In Exhibit 6 it shows that 217,909 intrastate passengers
1150 were handled, each one of which used two terminals, or a total number of terminals used by passengers—as terminal is herein defined—435,818.

148,978 interstate passengers used only one terminal in the state, either a delivery or a forwarding terminal, or a total of 148,978.

The total passengers using terminals in Arkansas was 584,796.

Applying this to the terminal passenger expenses of $31,832.60 gives an expense per passenger per terminal of 5.433 cents.

Now the Company has used a mileage equivalent to add to the actual road mileage of freight of 78 miles for each terminal, as compensation for the extra expense in terminal. They get that by dividing the expense per ton 36.486 cents by the line expense per ton mile .465 cents, which would be the equivalent of 78 miles of road haul.

They should have divided the expense per ton per terminal 31.139 cents by the line expense per ton mile .465 cents, which would give 67 miles of road haul.

In exactly the same way the computation of the mileage equivalent of passengers per terminal is 4½ miles approximately, instead of 7 miles.

The result of these errors is that on the intrastate revenues the assignment of passenger and freight revenues to Arkansas is not affected, as both the originating and delivery terminals are within the state; but on the interstate revenues the mileage allow-
1151 ance for terminal expenses is excessive by 11 miles on each ton, the difference between 78 miles the Company's method and 67 miles, the correct method in each terminal; and a like excess of 2½ miles for each passenger being the difference between 7 miles according to the Company's method and 4½ miles, the corrected method.

On trans-state revenues Arkansas has received less than its proportion of the freight and passenger revenues due to the excessive allowance of revenue to compensate for terminal expenses to territories outside the state. On all freight shipments an excessive mileage allowance of 22 miles has been made and on all passengers an excessive mileage allowance of 4 (or 5) miles, depending upon whether you drop the fraction in the computation of the expense per terminal.

Q. Mr. Simson, as I understand you, this Exhibit A follows and adopts, you might say, the Company's method entirely as to line passenger and line freight?

A. Yes, sir.

Q. And as to company material?

A. Company material is not figured in it.

Q. You follow their same plan on that?

A. Yes, sir.

Q. The only difference being that in computing the terminal unit you double the intrastate tons because each intrastate ton has had two terminal handlings?

A. Yes, sir.

1152 Q. And the unit to be used here is that of cost per ton per terminal?

A. Yes, sir.

Q. The Company method disregards the fact that intrastate has received two terminal handlings?

A. Yes, sir.

Q. And this unit cost is made up by aggregating the intrastate and interstate tonnage?

A. Yes, sir.

Q. Instead of doubling the intrastate?

A. Yes, sir.

Q. Resulting in a difference when put to the mileage equivalent of 11 miles on freight haul and about 5 miles on passenger?

A. 2½ miles on passenger.

Q. It making five when you double it?

A. Yes, sir.

Q. Is there any further statement you want to make about that exhibit to make it clear, Mr. Simson?

A. No, sir, unless you desire to put in here the test figures that we took from the revenue distribution to show the application of this mileage.

Q. It may be well to explain that and show how it works out.

A. These are taken from the Company sheets which are headed "Freight statistics showing revenue freight in pounds and
1153 pounds carried one mile, by states." It covered the distribution of the freight revenue by States on an adjusted mileage basis, the total revenue between each pair of stations being considered.

Q. As I understand your data there, it is just a few samples of the method by which these computations are made?

A. Yes, sir.

Q. Proceed.

A. The first one I have before me is taken from sheet 1364. It is from station 568, which is the Paris state line at Red River to Farlington, Kansas; two cars; revenue $282.19; weight 81,600 pounds. The total road mileage is 369 miles of which 109 miles are in Arkansas. To the actual road mileage is added 156, or twice the 78 mileage equivalent.

I understand this is a clerical error, as only one should have been added, as Red River is not ordinarily considered in this matter as having a terminal; that is, there is no station there; it is a dividing line which is in the middle of the bridge at the state line, and there are no terminal handlings there.

Mr. Moore:

Q. Did that come from Paris?

A. So the record states, "Paris state line." I don't know where it originated.

Mr. Hill:

Q. Proceed.

A. The constructive mileage—that is, the road haul plus twice 78 miles for terminal compensation equals 525 miles; the mile-
1154 age in Arkansas is 109, or 21%, which assigns to Arkansas a revenue of 17.26.

From page 2026: Station 35,654, Long, Arkansas, to station 568, Paris state line, 2 cars $87.55, weight 44,200. Actual mileage 104 miles of which 30 is in Arkansas, to which is added 78 miles for terminal allowance, all of which is added to Arkansas, making the total constructive mileage 182, of which 108 is in Arkansas, or 59%.

The revenue apportioned to Arkansas being 59% of the total, or 51.65.

That is an example of where the terminal allowance is to Arkansas.

Page 2061 of these records, station 347, Johnson, Arkansas, to station 5630, Sherman state line—that is the state line into Texas at Sherman. Six cars, $373.29; total weight, 160,000 pounds. Actual mileage 284 of which 76 is in Arkansas, to which is added 78 miles for terminal allowance in Arkansas, making the total constructive mileage 362, of which 154 is in Arkansas, or 43%, which allows to Arkansas $161.51.

Page 2066, station 6735, Birmingham, Alabama, to station 6000, Kansas City, 5343 cars, revenue $669,613.63; weight 222,407,400 pounds. Total actual mileage, 735, of which 140 is in Arkansas. To this actual mileage is added 156 miles, all outside the state of Arkansas, for two terminals, one at Kansas City and one at Birmingham, making a total constructive mileage of 891 miles, of
1155 which 140 is assigned to Arkansas, or 16%. The revenue apportioned to Arkansas on this basis being $107,138.18.

All these other examples are of the same general character. Now I might take one or two on the passenger side, if you wish.

Mr. Moore:

Q. Those are all interstate shipments to which you have referred.

A. Yes, sir.

Q. Do they affect the intrastate earnings in Arkansas?

A. No, sir, there is no terminal allowance in these examples for any intrastate business in Arkansas.

Q. The question I asked is, do those examples you have given affect the intrastate earnings?

A. Not at all—not the purely intrastate.

Mr. Hill:

Q. Proceed, Mr. Simson, with the passenger examples.

A. Taken from the Company's record, "Re-cap. sheets" of the Company records headed "Arkansas and Oklahoma statistics, July 1, 1912, to June 30, 1913, inclusive."

Sheet No. 10, from St. Louis to Paris, proper, which includes the Paris & Great Northern proportion, total revenue $141,025.27; the total actual mileage being 584 miles, of which 110 is in Arkansas, to which the Company has added as a mileage allowance to compensate for terminal expense, 14 miles—two 7 mile allowances, both of which are allowed to mileage outside of Arkansas. The proportion
1156 allowed to Arkansas is 18%, based on this constructive mileage, or $25,384.55.

Now in this instance, although these passengers crossed the Red River, there is a terminal allowance made for the Paris end, which is unusual. They have not done so in most cases. They have considered there is no terminal at the Red River.

The next item is St. Louis to the Red River, destination Paris, but

which does not include in this settlement the P. & G. N. proportion. The total revenue is $140,126.87; total mileage 568, of which 110 is in Arkansas; mileage allowance outside of Arkansas, 7 miles; making a constructive mileage of 575, of which 19% is in Arkansas; or a revenue allowance of $26,624.10.

I think that is all you need to put in on that side although I have more here.

Mr. Moore:

Q. All those you have referred to in passenger affects the interstate only?

A. Yes, sir.

Q. Do they affect the intrastate in Arkansas at all?

A. No, sir, it is all interstate.

1157 Q. Mr. Simson, take your next exhibit and give these gentlemen copies of it.

A. Yes, sir. That is Exhibit B.

In Exhibit B we have constructed the operating expenses on the lines north of the Red River, using the number of tons of revenue freight moved and applying thereto the 36.486 cents per ton for each terminal, or 72.972 cents for two terminals. We have applied the line or hauling cost per ton per mile as computed by the Company, .465 cents, to the number of tons of revenue freight moved one mile.

Have applied the terminal cost per passenger of 8.677 cents, or 17.354 cents for two terminals, to the number of revenue passengers carried.

We have applied the line or haulage cost of 1.242 cents per passenger per mile for the number of revenue passengers carried one mile. That should not be per passenger per mile. We have applied it per mile, but that is not the factor that is arrived at in the computation. That is an error of the wording of this exhibit.

Q. Where is that line or haulage cost 1.242——

A. Per passenger. It is not per mile, however,—yes, I beg your pardon, that is right,—for the number of revenue passengers carried one mile.

We have also used the company's computation of the cost of hauling mail and express as shown in the exhibits filed for the years in which it has been so computed, and in the periods where the

1158 Company has not computed it we have estimated it on the average of the years of such computation.

Mr. Moore:

Q. What period is that?

A. The periods where we have estimated it are for the two months ended December 31, 1913; for the year ended June 30, 1914, and for the two years, separately, ended June 30, 1909, and 1908, the Company's computation covering, as shown by the exhibits, the years ended June 30, 1913, 1912, 1911 and 1910.

This constructive expense built up on the rates of cost per mile and the terminal costs for both freight and passenger, plus the amount of mail and express expense, has been computed for each of

the seven years ended June 30, 1914, and for the two months, the test period, ended December 31, 1913.

The result is that in the two months ended December 31, 1913, the constructed expense is $1,262,795.93 in excess of the total operating expenses for the lines north of the Red River.

Q. Where do you get those operating expenses for the lines north of the Red River?

A. From the Company's records.

Q. Annual report?

A. Yes. On the two months' period that was taken from their books.

Q. These others you took from their books?

1159 A. Yes, sir. In the year ended June 30, 1914, the constructive expense was $5,997,167.97 in excess of the total operating expenses as per the Company's books.

Q. Mr. Simpson, I think you made an error in answering my question. Mr. Oliver calls my attention to the fact that as to the lines north of the Red River it is not in the annual report.

A. From the books. That is true.

Q. The annual report, as I understand it, takes in the whole system, including the Texas line?

A. Yes, that is as I remember it.

Q. All right, go on.

A. In the year ended June 30, 1913, the excess of constructive expenses over actual is $8,364,569.86, and in all of the preceding years it ranges from $5,401,621.33 to $7,470,158.92.

I think before I take up this question of the Red River terminals I will introduce this other exhibit.

Q. I think you had better introduce a series of exhibits covering this proposition, and then we can go on.

A. That is the best way, probably. Take Exhibit C. Here is the Court exhibit and here are two more.

Exhibit C is again identical with Exhibit B, with the exception that it substituted the reconstructed, or, rather, the terminal costs per ton and per passenger for the terminal costs per ton as

1160 computed by the Company, or as used by the Company.

Q. That is substituting, in round figures, the 31 cents which you found to be the correct method of computing, whereas the 36 cents is computed by the Company?

A. Yes, sir.

Q. And the same as to passenger?

A. Yes, sir. The result of this computation is that for the two months ended December 31, 1913, the constructive expense is still $769,109.63 more than the actual operating expenses in that period.

For the year ended June 30, 1914, the constructive expense is $3,257,472.34 in excess of the total operating expenses.

Q. What year was that?

A. June 30, 1914.

The years preceding vary from $3,123,949.71 in the year ended June 30, 1911, to $5,751,142.86 in the year ended June 30, 1913, in

each instance the constructed expense exceeding the actual operating expense by the amounts as named.

At the Red River there should be no mileage allowance for terminal freight expenses or terminal passenger expenses as there are no terminals there.

We were unable to get the actual tonnage from the Company's record that crosses the Red River, or the actual number of pas-
1161 sengers that cross the Red River. That had never been computed. We attempted to get that but found the work was so great that it was not feasible.

Mr. Moore:

Q. Did the Company have all of the ordinary records that are usually kept for things of that kind?

A. Yes, I think so. It takes special information, in other words, to determine that.

Now all the tonnage that crosses the Red River has this kind of a terminal in Texas if it did not have one north of the Red River, and all the tonnage that came from Texas had an originating point in Texas. So in order to see the effect of our inability to allow for the terminal expense which did not exist at the Red River we have taken the entire line with the same statistics as to the number of tons of revenue freight, the number of tons of revenue freight moved one mile, the number of passengers carried and the number of passengers carried one mile for the entire system, constructed a new expense account and compared that with the expenses for the entire system. First, upon the rate per ton and per passenger——

Q. Explain what you mean by "the entire system."

A. I mean including the north Texas lines.

Using the Company's computation of 36.486 cents per ton, and the passenger terminal of 8.677 cents per passenger, and in this instance the operating expenses constructive are, in the two months
1162 ended December 31, 1913, $1,360,363.43 in excess of the total called for by the Company's records.

In the year ended June 30, 1914, the excess of the constructive over the actual was $6,355,435.25.

In the preceding years back to 1908, six years, these differences in each instance, the constructive being in excess of the amount called for by the Company's books varied from a maximum of $8,577,-145.85 in 1913, to $5,395,349.84 in 1911.

Now, to get the effect of the reconstructed cost per ton per terminal and per passenger per terminal, using again the statistics for the entire line including the north Texas lines, but substituting the costs per ton per terminal for the costs per ton, the excess in the two months ended December 31, 1913, is $822,559.04. In the year ended June 30, 1914, it was $3,370,091.19, and in the preceding six years varied from $5,747,409.87 in 1913, to $2,834,364.04 in 1911.

On the Company's basis of computing terminal costs, for the two months ended December 31, 1913, the total constructive expenses as shown by Exhibit B were $6,478,587.36; the total operating expenses for the entire system including the North Texas Line is only $5,586,-

058.24, or an excess of constructive expense on tonnage moved north of the Red River, in excess of the total operating expenses of the entire system including the Texas lines, of $892,529.12.

Mr. Hill:

Q. In other words, as I understand that proposition, in order to see whether the error that would be in Exhibit B, of including a terminal expense at the Red River, is material, you have thrown into that all of the expense of Texas terminals, and everything else?

1163

A. Yes, sir.

Q. And still find by using these units of terminal and line cost, that the expenses are $800,000 in excess of the whole thing, that is, the expenses north of the Red River?

A. Yes, sir.

Q. Now go ahead.

A. Perhaps I might give the other years' comparison of the constructive expense on the Company's method of computation with the expenses of the entire line, including Texas, for preceding years.

In the year ended June 30, 1914, the excess was $3,800,278.78.

In the preceding six years it varied from $6,253,095.98 in 1913, to $3,411,246.15 in 1911.

Carrying out this same comparison, but substituting the expense per ton per terminal and per passenger per terminal for the expense per ton and per passenger, we found in the two months ended——

Q. You mean the corrected cents per ton, don't you?

A. Yes, sir. In the two months ended December 31, 1913, the constructive expense north of the Red River was $5,984,901.06, while the Company's records of total expenses for the entire system, including the North Texas Lines, were only $5,586,-058.24, a difference of $398,842.82.

1164

In the year ended June 30, 1914, this same difference, arrived at in the same way, is $1,060,583.15.

In the preceding six years the differences run from $3,674,742.71 in 1909, to $1,033,917.80 in 1911.

Q. Is that all the data you have on that?

A. Yes, sir.

Q. I wish you would state what that demonstrates, at least to your mind.

A. It demonstrates conclusively to my mind that the balance between the assignment of line and terminal charges is not correct, it is not correct either in the company's method of computing the terminal expense per ton and per passenger, or in the corrected method. The correction is merely in method, not in amounts. The method, however, is applied to amounts, but the basis of the correction, the assignment of expenses to line and terminal, cannot be correct and produce an excess over the total operating expenses.

Q. Necessarily, then, the error is in this division between line and terminal as described in the formula, and on which these exhibits are built.

A. It must be.

Mr. Moore:

Q. Which is over-stated, the line or terminal, Mr. Simpson?
A. That is a matter of conjecture. I should say the terminal was, that being the larger factor and producing the larger
1165 result. There is no balance between them, at any rate.

Mr. Hill:

Q. At any rate, you have here factors which, if correct, would produce the actual operating expenses?
A. Yes, sir.
Q. But instead of producing the actual operating expenses they are running something like 5,000,000 a year above it?
A. Yes, I think they average close to 20%.
Q. What does that demonstrate as to the correctness of the assignment of revenue to Arkansas under this equated revenue method?
A. That in interstate business the state having the short mileage haul would benefit by the error, and the state having the long mileage haul would suffer by it. In transtate business Arkansas was bound to suffer because the allowance for terminals outside of the state is excessive.

Mr. Moore:

Q. What effect would it have on intrastate earnings?
A. None whatever in this computation.

Mr. Hill:

Q. It would have on the intrastate expenses, would it not?
A. The intra expense is a factor in the computation of the rate per passenger per terminal and per ton per terminal, yes, sir.
Q. On the revenue side of it the intrastate is not affected by that 78 miles?
1166 A. No, because 100% of the mileage is within the state.

Mr. Moore:

Q. Nor by the 7 miles in passenger, either?
A. The same thing intrastate.

Mr. Hill:

Q. This demonstrates that this division of expense between line and terminal as worked out here is necessarily wrong?
A. Yes, sir.
Q. In one of the exhibits—I don't recall which one, you know them better than I do—it is stated that the terminal cost in Arkansas is closely reflective of the cost in the entire system: Do you recall what exhibit that is?
A. I think it is in Exhibit No. 4.
Q. I want to get this accurate. On page 2 of Exhibit 4, it says: "This process assumes that the average terminal cost, per ton handled, in Arkansas, is closely reflective of the average cost per ton for similar service in the other states in which the St. Louis &

San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per ton mile in the other states in which the St. Louis & San Francisco Railroad operates."

A. In that respect——

Q. Wait a moment, I want to get the passenger statement. I don't see it about the passenger, but I am satisfied it is in there either in this exhibit or some other that it is assumed to be
1167 closely reflective of the passenger terminal and passenger haulage expense throughout the entire system.

A. It must be——

Mr. Moore: Wait one moment. The word "process"– "this process assumes," etc., refers to the pro rate of interstate revenue, does it not?

Mr. Hill: What page?

Mr. Moore: That is what you quoted on page 2, beginning with the last paragraph.

Mr. Hill: Yes, that is correct.

Mr. Moore: Suppose you embody that in your question.

Mr. Hill: I will make it clear.

Q. This quotation that I read you from page 2 of Exhibit 4 was referring to the method of obtaining equivalent mileage to compensate for terminal costs?

A. Yes, whether that assumption is stated there or not it is carried into effect by the actual allowance of mileage at terminals in computing the distribution of revenue.

Mr. Moore:

Q. That is interstate, is it not?

A. Yes, sir, interstate. In effect, it could be said to have been applied to the intrastate by adding the mileage at both ends, but as 100% is within the state it is not necessary.

Q. You mean the Company did that?

A. Oh, they did not do it.

Q. Was not the intrastate revenue actually located?

A. The intrastate revenues, according to their method,
1168 were actually located to Arkansas, yes, and they include 100% of the revenue, and if the rate itself was constructed to carry any proportion for terminal cost it would thereby be assigned to Arkansas. I am not a rate man, I don't know.

Mr. Hill:

Q. Mr. Simson, I want to read you from the testimony of Mr. Hamilton on page 373, and ask your opinion on it:

"A. Where the haul was across Arkansas, and there was no terminal within the state. Let us say on a shipment from St. Louis to Dallas, or the Red River, where our haul stops, just above Paris. We added 78 miles to the Missouri mileage, and we added 78 miles to the other terminal at Red River—that is, the other outside terminal; and we added nothing whatever to Arkansas; and that made

the two terminals; two outside of the state and none in the state on trans-state business.

As an illustration, I have made a little research since the last hearing. We thought there was some inequality in this outside cost, and it was assuming too much when compared relatively with the big terminals. I was pleased to find that at St. Louis our two big stations, the Broadway Station and our own station at 7th and Cerre Street, our cost per ton for handling freight has run between 36 cents and 39 cents for years; and that is pretty close to this Arkansas average. That strengthened my opinion that this is a fair equation, this comparison of terminal cost here in the state as a whole with such terminal cost outside. I took that up just to satisfy myself how relatively correct that was."

What is your opinion, based upon your experience and observation, Mr. Simson, as to whether 36 cents would be a fair estimate of terminal cost per ton per terminal in Arkansas?

A. I think it is excessive.

Q. These figures of yours prove it pretty well, don't they?

1169 A. That is what I am basing my opinion on.

Q. Take your next exhibit, Mr. Simpson.

A. I might say before you leave that, that I think Mr. Hamilton was in error when he testified that they regularly made a terminal allowance at the Red River. That is not borne out by all of the examples that I have taken. There have been instances where the allowance was made for freight passing into Texas—I don't know about passengers, but for freight passing into Texas.

Q. I suppose he was speaking of the general proposition.

Mr. Moore: Let Mr. Hamilton explain that.

Mr. Hill: All right.

Mr. Hamilton: I think the illustration that you speak of was a movement of freight through Paris. It went——

Mr. Hill: Trans-state.

Mr. Hamilton: That crosses Red River right above Arthur City and right below Hugo. The P. & G. N. Railroad extends from the south bank of Red River to Paris, and those earnings and expenses are included in all of these Frisco proper figures.

There is no terminal at Red River on this business, because in the case of freight, the division, especially where the P. & G. N. gets an intermediate haul, does not break at Red River, but the Frisco haul is treated as extending to Paris.

In the case of passengers this is also true, the rate not

1170 breaking at the Red River. Often no separate P. & G. N. coupon is issued on a through ticket for a passenger going over the P. & G. N. to Paris or beyond. That road keeps separate accounts according to the Texas law, but instead of pro rating each ticket they bill us monthly on basis of the quantity of freight and number of passengers handled. This illustration of the Paris gateway indicates that in some instances the Texas terminal of the Frisco is not at the Red River.

Mr. Hill:

Q. I thought that condition applied to all your Red River crossing-?

A. No, sir.

Q. Then it would be proper to allow it a terminal for the Red River crossing going to Paris?

A. It would where the P. & G. N. is the intermediate line. Where it is the delivery line it would not be.

Q. The whole difficulty about the proposition, as I understand it, Mr. Hamilton, is this: That you have a system in Texas, but under the Texas law you have to have your own general offices and everything break at the state line.

A. Separate receiverships.

Q. And your freight and passengers just move right through from one system to the other without any change, without any terminal, but owing to this situation of the law down there you have to treat them separate: That is a correct statement of it, is it not?

1171 A. That is correct.

We run our trains through to Paris and Sherman and Vernon and Quanob, and collect pay for the service we render south of the river.

Q. About how large a proportion of the traffic would you estimate would be affected by this proposition here that this Exhibit B is made on the basis as if there was a terminal allowance for all of that traffic which Mr. Simson has pointed out is erroneous to a certain extent? From your knowledge of the traffic, how much would that amount to?

A. I tried hard to help Mr. Simson to get the Texas tonnage the other day, but I couldn't even form a conjecture because in the Texas Company's tonnage is not only contained what comes north across the Red River, or goes south of the river, but there is also the Fort Worth & Rio Grande extending out to Menard in the desert, and the B. N. & S. running off the Fort Worth and Rio Grande, and the traffic between Fort Worth and Dallas over the joint track, and the traffic on the joint track of the G. C., so all of that tonnage is so interwoven with all the other that I couldn't make it.

Q. There is very little of that going into the Arkansas tonnage, except the Paris?

A. That is the most traveled route between the north and

1172 the south.

Q. Could we not pretty well describe the balance of that as negligible? I know there would be some of it.

A. Except this: That the stuff that moves north from Sherman often goes up to Madill, and if there be a preponderance of traffic northbound on the Red River Division, it goes over to Hugo,—the map in evidence indicates that—and then goes up to Fort Smith. It is handled as best fits the condition. So it is pretty hard to separate it.

Q. I know that the traffic across the Red River at Paris would be a very considerable traffic, but my question is, would not the other

traffic crossing the Red River at the other gateway be practically negligible?

A. No, sir. I think you will find, in fact I know, that in the last six or seven, or possibly eight years, there has been a steady growth of traffic north through Sherman and Sapulpa, and south through Sherman and Sapulpa. It is growing constantly. We prefer that to the mountain route over Boston Mountain and Winding Stair Mountain.

It is pretty nearly an even up proposition on the Paris gateway and through the Sherman gateway. With the other two crossings it is negligible. That is where we starve to death out on the west end.

1173 Mr. Hill:

Q. Mr. Simson, with Mr. Hamilton's explanation of that situation there we probably made a mistake in describing one of those matters as a clerical error.

A. I changed my mind as to that. I was looking at the wrong factor when I said it was a clerical error.

Q. Is there any other statement, in view of Mr. Hamilton's explanation of those gateways, that you desire to make to throw light on these exhibits?

A. No, sir. I would have preferred to take the allowance for the terminal from the tonnage that moved north of Red River, and allowed a terminal for it, but being unable to get the information by which to do so I had to adopt the other horn of the dilemma and take in Texas tonnage, Texas passengers, and Texas mileage and compute the thing upon the same basis, with a result which verifies the computation for the lines north of the Red River.

Q. Except for that error in this amount of traffic they are really the same proposition?

A. Yes, sir.

Q. One takes the whole system, and the other you thought takes the system north of the Red River, and did take it, and which you admit to be an error to the extent of what the fact may be as to the one terminal cost?

A. Yes, sir.

Q. Take your next exhibit; I have forgotten what number it will be.

1174 Mr. Moore: Exhibit F.

A. I had some curiosity to know how a distribution of maintenance of equipment repair items for locomotives, passenger cars, and freight and work equipment, compared with the Berry tables as shown in the proceedings of the Fifth Annual Convention of the American Railway Engineering and Maintenance of Way Association held in Chicago, March 15 to 17, 1904.

I do not pretend to sustain the tables from any technical knowledge of engineering matters.

I have taken those tables, and, as near as the information there given would permit—and I think it is fairly close—have assigned to line and terminal the percentages of the maintenance, following the

definition of line and terminal as given in the formula, Exhibit No. 1.

I have in this exhibit quoted the full tables as shown in Mr. Berry's table. On page 2 of Exhibit F. I have shown the assignment of these percentages, which represent distribution of contributing causes, to line and terminal according to the best definition I could make of the terms employed.

Time and exposure being applicable to both line and terminal has been apportioned between the two upon the basis of the percentages previously assigned; in other words, an overhead method, if you please.

This distribution of these Berry table percentages shows for
1175 locomotives 58.48% to line——

Q. Wait a minute before you go into the figures. You have explained what you did with time and exposure.

A. Yes, sir.

Q. That is practically depreciation, is it not?

A. Yes, I would so consider it.

Q. You have treated that as overhead and after assigning the others you have taken their percentages to get a relation between line and terminal?

A. Yes, sir.

Q. The next item that Berry has in his table is starting and stopping: How do you classify that, as line or terminal?

A. As terminal.

Q. Is that entirely accurate?

A. No, there is starting and stopping for water, for coal, for passing, for train orders, and things of that sort, so that a part of that really should have been assigned to line, but I couldn't divide it.

Q. The greater part of it, or a very large part of it, I presume you consider terminal?

A. In accordance with the definition of terminal in Exhibit No. 1.

Q. So you assigned all of that to terminal, not being able to work out what part of that should go to line?

A. Yes, sir.

1176 Q. The next is getting up steam and terminal work. That is on the local table that I am reading now.

A. Yes, sir.

Q. How did you assign that?

A. All to terminal.

Q. How did you assign "average curvature?"

A. All to line.

Q. Do you think that is accurate?

A. No, I don't think it is necessarily entirely accurate. There is some curvature in terminals.

Q. But I presume you would consider that negligible, or not enough to affect the proportion?

A. I had no way of dividing it.

Q. "Grades:" How did you classify that?

A. As line.

Q. Then you put starting and stopping, getting up steam and terminal work, as all terminal?

A. Yes, sir.

Q. The average curvature, average grades and distance you put as all line?

A. Yes, sir.

Q. It is the same thing on the other cars, is it not?

A. Yes, sir, the same principle has been followed as to passenger cars and as to freight and work.

Q. Now go on.

A. Taking the application of the percentages reached by comparing the total of the distributed percentages as shown on
1177 page 2, and comparing them with the Company's distribution of repairs, renewals and depreciation of locomotives in Arkansas for the months of November and December, 1913, we have the following comparison:

The total expense as shown by Exhibit No. 8 was $38,619.50, of which $26,544.44 was assigned to line and 31.27%, or $12,075.03, was assigned to terminal.

By using the percentages arrived at by the distribution of the Berry method, as stated on page 2, we distributed 58.48%, or $22,584.68, to line and 41.52% or $16,034.82 to terminal.

The difference between the result of the Company's method and the Berry table method is that the Company distributed $3,959.76 less to terminal than the Berry tables would produce.

Q. There is a word in your exhibit there which I think you would wish to correct: You say the "Company's method is excess:" It ought to be "in excess." Make that correction. It is in the third page, Mr. Moore.

A. "In" instead of "is," it is a typographical error.

Mr. Moore: All right.

Mr. Hill:

Q. If I understand that, under the Berry table $3,959.76 more is assigned to terminal than there is under this General Managers' table that is used in Exhibit No. 1?

A. Yes, sir.

Q. Before you go on to the other—that is on the locomotive
1178 repairs—if you have examined Mr. Wellington's table on locomotive repairs and its assignment——

A. Yes, sir.

Q. I will ask you how near the Wellington table of locomotive repairs would be to the Company's table and the Berry table?

A. Using the same method of distribution as between line and terminal, that is, the same factors in line that have been assigned to line in the distribution of the Berry terminals, and the same factors in terminal, and the same proration of the time and exposure item, the terminal would be 34.4% of the total and the line 65.6% of the total.

Q. As against?

A. As against the Berry table 58.48% line and 41.52% terminal.

Q. Have you calculated how near it would be in dollars and cents in this item?

A. No, I have not calculated it exactly.

Q. Approximately?

A. It would cut down the difference between the Company's method and the Berry table by about $3,000.

Q. And leave something like $1,000?

A. $900 or $1,000 difference.

Q. Now proceed with your repairs to passenger cars.

A. Repairs, renewals and depreciation of passenger cars in Arkansas, the total of which in the months of November and
1179 December, 1913, per Company's Exhibit No. 8, was $7,352.21, of which $4,774.53, or 64.94%, was assigned to line, and $2,577.68, or 35.06%, was assigned to terminal.

By using the Berry table method distributed as above 63.88%, or $4,696.59, was assigned to line, and 36.12%, or $2,655.62, was assigned to terminal, the Berry table method producing $77.94 more than the Company's method.

Q. To line?

A. To terminal.

Q. Within 1.06——

A. The difference is 1.06%.

In repairs, renewal and depreciation of freight train cars and work equipment in Arkansas for the two months ended November and December, 1913, the total as taken from the Company's Exhibit No. 8 for freight train cars was $61,504.02, and for work equipment $1,302.20, a total of $62,806.22, it being necessary to group these two items because the Berry tables cover freight and work, not separately but as a group.

Of this total expense the Company assigned to line under the formula, $23,377.53, or 37.22%, and to terminal $39,428.69, or 62.78%.

Mr. Moore: Did you not read that $23,377 to line?

A. I am liable to.

Under the Berry table method as distributed above, 61.72% would be assigned to line, amounting to $38,764, and
1180 38.28%, or $24,042.22, would be assigned to terminal.

The Company's method produces an excess charge to terminal over the Berry table method of $15,386.47, or 24½%.

Mr. Hill:

Q. Is there anything further you wish to say about this table, Mr. Simson?

A. The only thing further I had in mind was that the Berry table results are practically achieved by the Company, substantially achieved, in locomotives and passenger cars, but there is a wide difference in the freight cars. It is purely the result of a difference in method.

Q. And the Company was more closely allied to poor old antiquated Wellington on the locomotives than they were to Berry?

A. Yes, sir.

At this point recess was had until 2 o'clock P. M.

1181 After recess on Friday, October 30, 1914, the following proceedings were had at two o'clock P. M.

Direct examination of Mr. Simson resumed.

By Mr. Hill:

Q. Mr. Simson, take Exhibit G please, as the next one to be introduced. I wish before you undertake to explain the exhibit that you would explain the situation calling for the exhibit.

A. Under the equating method which contrasts the expenses and earnings of the year ended June 30, 1913, under the old formula, to the distribution of the same earnings and expenses under the new formula, from which a percentage relation is obtained, and which percentage relation is applied to the distribution of earnings and expenses under the old formula basis for the four months ended December 31, 1907, it became necessary to make an examination of the distribution or apportionment of expenses to Arkansas under the old formula.

The result of not apportioning to Arkansas under the old formula any expense in the year ended June 30, 1913, which should have been so apportioned, would increase the percentage relationship of the new formula over the old, and thereby unduly increase the application of that percentage relationship to the figures for the four months of 1907.

1182 In pursuance of this investigation we found that the method of handling the expenses at the Memphis terminal was different in 1913, from what it was in 1907, and effective as of February 1, 1912, the Memphis terminal subdivision, which covers in part the accounting division or Ozark Division No. 8, and in part the southeastern division or No. 9, was formed

The method of handling the Company distribution of expenses provides that in the superintendent's office a large part of the detailed work is done and the total results of the distribution alone, or the summaries of the blotters, perhaps, is a better way to state it, are sent to the general offices, which takes these figures and adds in the expenditures or items that may affect the distribution but of which the district superintendent may not have knowledge or data.

From February 1, 1912, the Memphis terminal subdivision was composed of four sections: Section C 72 running from mile post 470 to mile post 473.5, which is a part of the eighth or Ozark Division.

Section C-73 which runs from mile post 473.5, to mile post 479.5; which is also in the eighth or Ozark Division.

Section C-74 which runs from mile post 479.5 to mile post 486.6, of which the mileage to mile post 484.4 is in the Ozark Division, and from mile post 484.4, to mile post 486.6 is in the ninth or southeastern division.

1183 The other section, No. C-75, which runs from mile post 486.6 to mile post 489, is in the ninth or southeastern division.

The reports which the superintendent makes of his distribution of such expenses as can be distributed by him, are covered by what is known as the G-19 report.

In the year ended June 30, 1913, these reports totaled $401,-352.83, which pertained to transportation expenses. Of this $16,737.25 was apportioned to the bridge in Arkansas and a like amount to the bridge in Tennessee.

$156,474.83 was apportioned as applying to the ninth or southeastern division, which is in Tennessee, and $10,046.01 belonged to states in the ninth division, Tennessee, Mississippi and Alabama, which was not apportioned between those states.

The balance, $201,357.38 while shown as belonging to the eighth or Ozark Division was apportioned in the distribution of expenses under the old formula as applying entirely to Tennessee.

Now, as the Ozark Division extends to the limit of mile post 484.4, and as the Arkansas-Tennessee state line is at mile post 481.8, it is evident that this amount did not apply entirely to Tennessee. This is sustained by the fact that in re-distributing this same expense by states under the new formula, $72,107.48 of this $201,357.38 is assigned to Arkansas.

1184 While we know that part of this $201,357.38 should have been assigned to Arkansas under the old formula distribution, we did not compute the amount. But we have assumed that as the old and the new formula distribution on these particular expenses did not materially differ, the same amount should have been assigned to Arkansas under the old formula as under the new one.

Following that theory we further assumed that of this assumed amount assignable to Arkansas under the old formula, the corrected figure, the amount of the correction would be divisible between passenger and freight upon the same basis as the totals of the distributed figures.

Q. And then you give those figures in the exhibit?

A. Yes, sir, then I give those figures.

The percentage relationship between the transportation expense, freight, old and new formula, as shown in the Company's Exhibit 23 would be corrected to 105,72%, and for passenger 85.38%. It would be corrected to those amounts if those adjustments were applied.

Q. Making the corrections that should have been made from the data given, then give us the effect of that.

A. I just worked out the percentages that would obtain between the old and the new formulæ provided this correction was made and then compared them with the percentages resulting from a comparison without the correction, or as they are shown in Company's Exhibit 27-A; with the result that the expenses for the four months ended December 31, 1907, would be reduced

1185 on account of the reduction of the equating percentages, for freight transportation expenses by $16,977.90 and for passenger transportation expenses by $6,102.72, or a total of $23,080.62.

We made no computation for the intermediate years of 1910,

1911, and 1912, but they would all be affected by the same adjustment.

Q. The only assumption you make in this exhibit, if I have understood you correctly is that assuming that this $72,107.48 was properly distributed.

A. No, sir, there are two assumptions. The first is, that the $72,107.48 would also have been distributed under the old formula, to Arkansas. That is, that the formula on these particular items was exactly the same. I don't know whether they are or not, but they are substantially the same.

Q. They should be the same, shouldn't they?

A. Yes, I think so.

Q. What is the other assumption?

A. The second assumption is that they should divide between freight and passenger in the proportion that the figures they had already divided showed.

Mr. Moore:

Q. Do I understand you to say that the Douglas formula should be the same as the formula introduced in evidence in this case as Exhibit 1?

A. No, sir.

Q. Isn't that what you stated just now?

1186 A. No, sir, I didn't mean that. I mean, in the light of the distribution of transportation expenses to the state of Arkansas the old formula does not differ materially from the new one. I do not say they are just alike, but they are substantially the same.

Mr. Hill:

Q. So far as these items go?

A. Yes, sir.

Q. Mr. Simson, did you find any further facts in investigating this particular phase of the equation of the 1913 figures back to 1907, which would affect the result of the equation?

A. Yes, sir. The first thing I recall is that transportation expenses have been used as basis for distribution of property.

Q. What effect would that have?

A. It would disturb the distribution by the amount of the differences computed, or the relative amounts.

Q. And assign more or less property to Arkansas?

A. It would change the assignment based on the use of the property.

Q. According to errors of this character?

A. Yes, sir.

Q. Is there anything further along that same line that you have there?

A. Yes, sir. The equating method has been applied only to the sub-total classifications; that is, the total of maintenance

1187 of equipment, the totals of maintenance of way, of transportation, of traffic, and of general expenses.

Had the percentages of difference of the subclassifications—that is, the individual Interstate Commerce Commission accounts—been worked out and the percentages applied to these individual accounts, the equated figure for the four months ended December 31, 1907, would have differed from the equation of totals by $7,397.80. That is, the equation of individual items would have been less than is the equation of sub-totals.

Mr. Moore: Are those figures developed on the sheets before you?

A. These are just working sheets.

Q. Are you going to make an exhibit of that?

A. No, sir.

Q. Will you let us have those later for examination?

A. Yes, sir.

Mr. Hill:

Q. Mr. Simson, you had better explain that a little more fully—or see if I state it correctly: They have made the equation on the total expense for the five principal accounts?

A. The five principal groups of accounts.

Q. If they had made the equation on the individual accounts it would have made the difference you have just mentioned?

A. Yes, sir.

1188 Q. What was that difference? I didn't catch it.

A. $7,397.80.

Q. More or less expense assigned to Arkansas?

A. It would make less expense if the individual items were equated.

Q. It is that much more by using the aggregates?

A. Yes, sir.

Mr. Moore:

Q. Did you work that out as between freight and passenger?

A. No, sir, that is purely as assigned to Arkansas.

Q. The Company exhibits are assigned to freight and passenger?

A. I used them before that division was made.

Mr. Hill:

Q. Yours are merely on the assignment and not on the subdivision, is that right?

A. That is right.

Q. Proceed.

A. In the old formula many items were prescribed to be distributed by states on an actual basis. Under the new formula the language is changed to "direct" or "locate direct." The expense so distributed varied materially.

Q. Before you get into the items, you understand those terms "actual" and "direct" to mean the same thing?

A. I should say they are synonymous.

Q. Are they a class of items which should be susceptible of exact allocation?

1189 A. I should think so. Take the item of transportation expenses, account 63, station employes: These are for the year ended June 30, 1913. The old formula provides that for Arkansas $207,957.30 was apportioned, and under the new formula it is $226,019.35.

Q. Is there any reason why that should not be actual in each formula?

A. None that I can see.

Q. There is no other basis for it, is there?

A. No, sir, an actual basis is the logical basis for that.

Q. That is an actual assignment of those particular expenses to Arkansas as between Arkansas and the other States?

A. Yes, sir.

Mr. Moore:

Q. Is the old formula that you referred to a moment ago the one that Mr. Douglas used?

A. Yes, sir, that is what I mean by "old formula."

Mr. Hill: The formula described here is the one Mr. Douglas used for making his reports to the State Commissions.

Q. Proceed with your explanation, Mr. Simson.

A. Station employes and expenses, under the old formula, $14,608.74, while the new formula assigns to Arkansas $14,360.98.

Yard conductors and brakemen, No. 68, the old formula assigns $43,992.81 and the new $68,489.24.

1190 Yard engines Account 71, the old formula assigns $25,166 and the new formula $37,644.48.

Yard supplies and expenses, Account No. 70, the old formula gave only $378.94 and the new $1,008.24. The ratio of the old to the new there is 286 per cent.

Injuries to persons, account No. 103, is the other way. The old formula shows $77,349.95, and the new formula $52,768.35.

Mr. Moore:

Q. Does the old formula call for an allocation for that?

A. It is actual, I think.

Q. It is actually allocated, is it?

A. Yes, sir, I think so. There are some others here, but I think that will illustrate it.

Mr. Hill:

Q. Those are the principal ones you have read?

A. Yes, sir.

Q. Give Mr. Hamilton your working sheets on that.

A. All right.

Q. Some of those are more and some less, more in one formula and less in the other?

A. Yes, sir.

Q. And vary in amounts?

A. Yes, sir.

Q. Did you make an investigation to see which was correct?

A. I did not.

1191 Q. What is the effect of using those; it is a difference in method of calculation: what difference does it make in the equation on account of those differences?

A. It increases the amount of percentage which is applied to equate the four months of 1907, and all the intermediate periods.

Q. What value, in view of these exhibits, and the facts you have given, do you think can attach to the equation of 1907, worked out in this way?

A. I do not think that the formula method can be given effect to the four months of 1907, by any equating method based upon a period four or five years later, which in turn is based upon test information without that period, in part.

Q. Even if the method was correct, what value would you attach to it in view of this data you have just put into the record about the erroneous omission of $72,000 on the Memphis terminals and the difference in distribution in accounts and distribution in the aggregate, and the difference in taking these actually in one formula and found to be another figure under another formula?

A. Of course, all these things would have to be adjusted before any weight could be given to the equated figures.

Q. Take your next exhibit. You would better take three of those together, Exhibits H, I and J.

Mr. Hamilton filed Exhibit 35, tending to prove the normality in the revenues of the four months of 1907, compared to the

1192 four months of that year and a series of years—five, I think—and showed that the proportion of revenue for that four months' period compared to that year was fairly normal with the proportion of revenue of the similar four months in each of the succeeding five years.

That made us a little curious to see how the normality ran on expenses. Have you worked that out?

A. Yes, sir.

Q. Give us that.

A. Exhibit H takes the gross earnings and gross expenses by subclassifications for the five fiscal years ended June 30, 1908, 1910, 1911, 1912 and 1913, with the amount of earnings and expenses in each class for the same identical four months, that is, September, October, November and December of each year.

The proportion of earnings in the last four months of 1908, was 36.98% of the total for the year.

The average ratio of earnings for the five year period in the months of September, October, November and December, was found to be 36.34 per cent or less than the proportion earned in 1908, in the last four months of the year. That is to say, of every dollar earned in the fiscal year 36.34 of it was earned in September, October, November and December, taking the five years as an aggregate.

On expenses the same plan of obtaining average ratios has been pursued for the same periods for the years 1908, 1910, 1911,

1193 1912 and 1913, with the result that the average ratio of maintenance of way and structures expense in the last four months

of the year, for five years, is 40.91% of the total for the fiscal year as against 39.58% for the last four months of 1908 considered alone. By that last four months I mean the four last months in the calendar year.

For maintenance of equipment for the five years the average ratio is 36.88%, while for the year ended June 30, 1908, alone, it is 43.42%.

Q. You mean within the four months of that year?

A. Yes, sir. For traffic expenses the average expense in four months was 34.73% while the ratio of expense for the four months ended December 31, 1907, compared with the fiscal year ended June 30, 1908, is 34.92%.

In like manner for the transportation expenses, the average ratio for four months as against the aggregate for the five years is 34.80% as against 37.03% when applied to the same relative period in 1908, alone.

In general expenses the average is 34.56%, as against 34.11% in 1908 considered alone.

Q. How do you apply the results you have found as shown in that exhibit?

A. I have an intermediate exhibit to explain before I do apply them.

Q. Take up Exhibit I, and explain that, will you?

1194 A. As the equating theory carries with it the idea that each period is equal to each other period, in order to make the equation method a proper one, I have taken the proportion of earnings and of each class of expenses as assigned to Arkansas under the Company's new formula, without any adjustment or modification whatever, and contrasted it with the like earning and expense for the entire line. I did this for the four months ended December 31, 1907, and for the fiscal years ended June 30, 1910, 1911, 1912, and 1913. From the totals thus obtained I found what the average of Arkansas to the entire line was—that is, what proportion of the total earnings and of each class of expense in Arkansas was as opposed to the entire line. I found that the ratio for Arkansas in earnings for the full period is 10.22%; for maintenance of way and structures, 12.97%; maintenance of equipment is 10.15%; traffic expenses 9.79%; other transportation expenses 9.98% and other general expenses 9.45%.

To reduce the four months' period ended December 31, 1907, to the normal basis, which would be necessary to make an equating method a proper one, I have first taken the earnings and expenses by classes for the entire year ended June 30, 1908, and have applied the percentages, the ratios for four months to the fiscal year, which are shown as computed from the totals in Exhibit II, with the result for earnings that the average per cent applied to the actual book earnings, without any modification, for the entire line, showed

1195 that $12,321,087.41 would be the average earnings in the four months, provided all the periods were normal.

In Exhibit I it is shown that the average assignment to Arkansas (Exhibits 22, 24, 25, 26 and 27-A) is 10.22% of the entire line.

Therefore, for earnings I have applied this 10.22% to this normal four months' earning, which would average the amount assigned to Arkansas as $1,259,215.13.

For each of the classes of operating expenses I have applied the same method, first taking the entire amount for the fiscal year ended June 30, 1908, and have assigned to the last four months of the year 1907, on the percentages reached in Exhibit H, and have sub-assigned after that the percentages assigned to Arkansas, which are the result of Exhibit I, and have a constructive average expense on Arkansas business for the four months ended December 31, 1907, of $969,481.68.

The taxes have been taken from Company Exhibit 27-A, without change or alteration, at $45,282; making the operating expenses and taxes as adjusted $1,014,763.68, a net revenue resulting average of $244,451.45. To this must be added the rental income taken from Company Exhibit 27-A, from which we have excluded the guaranteed rental dividend paid to the Kansas City, Fort Scott & Memphis Railroad——

Q. That is corrected in Exhibit 28?

A. Yes, that is corrected in Company Exhibit 28, that is true.

1196 And the hire of equipment, net debit, making the net income rental, or net other income of $103,703.38; which added to the net revenue, making a net income available for return on property, of $348,154.83.

Double the assessed valuation of the property in Arkansas in 1908, was $15,692,338, and one-third of that, to reduce to a four months' proportion, would make $5,230,779.33. The percentage of return is computed as 6.66%.

Mr. Moore: Is that on all the business in the state, freight and passenger?

A. Yes, sir.

Mr. Hill:

Q. That is just making these four months of 1907 normal with the four months for the five years' period that exhibits have been put in to cover both earnings and expenses?

A. Yes, sir.

Q. Have you gone at that same proposition in another way?

A. Yes, sir.

Q. Explain that without following the detail of the figures.

A. I won't have to follow the detail.

I have set this same exhibit up in a trifle different form in that I have taken the total for the months of September, October, November and December in the years ended June 30, 1908, 1910, 1911, 1912 and 1913, as shown in Exhibit H, and have reduced them to

1197 a mere mathematical average by dividing by five, which would give a mathematical average for a four months' period. Against this I have applied the same percentages as taken from Exhibit I, with the result that on that basis the net income available for return on property would be $420,338.91, a percentage of 8.04.

Q. As a return upon all of the property in Arkansas?
A. Yes, sir.
Q. Explain a little more fully the difference in the theory of those two calculations.
A. One is on a flat mathematical average, this Exhibit K. The other is reduced to the proportion of each dollar earned in the year that is earned in the last four months of a year.
Q. And the expense of earning that, likewise?
A. Yes, sir.
Q. Take Exhibits L and M. I think they will go together.
A. Exhibits L and M are identical with Exhibits H and J, with the exception that a six year period was taken for the reason that the test months of November and December were within the year ended June 30, 1914, and it was thought we should show what effect taking this test period in would have. The compilation is upon exactly the same basis as for Exhibits H and J, and the same methods of application of the figures in determining net income available from the property are followed. The result varies from the other to a slight extent. The net income available upon this basis, a longer period, being $362,941.23, or a percentage of return of 6.94.

1198 Mr. Moore:

Q. That likewise is upon all business?
A. Yes, sir, upon all business.

Mr. Hill:

Q. That just lengthens out your normality to make it conform to a six year period instead of a five year period?
A. Yes, sir.
Q. Now take Exhibits N and O and explain them.
A. Exhibit N was prepared to obtain the percentage relationship for earnings and expenses of the entire line for four full years ended June 30, 1910, 1911, 1912, and 1913, and the four months ended December 31, 1907, and the amount assigned to Arkansas by the Company under its old formula.
Q. These preceding ones on this subject using the new formula?
A. Yes, sir.
Q. Proceed.
A. The percentages, Arkansas to the entire line, differ slightly from those as shown in the former exhibit. We began by taking the same revenue and expenses for the year and applied the average percentages as shown in Exhibit H, to reduce to a normality; and then have applied the average under the old formula as applying to Arkansas.
The result in this instance is a net income available for return on property of $394,978.73, or a percentage of return of 7.55%.
1199 The next exhibit, Exhibit P, is the application of the old formula percentages of assignment to Arkansas to a mathematical average for the months of September, October, November and December in the five years named.
Q. I believe it is on the same basis as Exhibit K?

A. On the same basis as one other, I will see which one it is. It is on the same basis as Exhibit K, substituting the old formula percentages of earnings and expenses in Arkansas, for the new formula of percentages shown in Exhibit K.

The result in this is a net income available of $472,488.77, or a percentage of 9.03%.

Q. Did you make any changes in this exhibit on the old formula?

A. No, sir, that is as the figures are shown in the Company's exhibit.

Q. All right. Now take the next one.

A. Exhibit Q: Exhibit Q goes back to the distribution of the revenue for the four months of 1907, as made from the Company's records. The distribution record calls for the assignment to Arkansas of $936,117.79, out of a total of $9,283,962.98, or an average of 10.083%.

From this deductions were made covering overcharge claims, cotton suspense, switching, etc., amounting to $501,661.84, of which $36,275.50 was assigned to Arkansas.

The remainder is the revenue assigned to Arkansas without considering the amount charged under the caption "Charges and prepay connecting lines." The total of this item has been described
1200 as a balancing figure. It is not quite that. It includes the adjustment of transit. It also includes all discrepancy sheets and correction accounts, adjustments with foreign roads not distributed in the gross freight revenue between states.

Of this $393,608.01, $47,231.76, or 12%, was charged against Arkansas. This left the freight revenue, as shown in the original exhibit filed in this injunction case, at $852,610.53.

There is also on this exhibit a memorandum of the differences in transit at the end of each month, with the increase or decrease shown.

There is a series of these exhibits that run close to each other. The next one——

Mr. Moore:

Q. Does your present investigation of this matter as to this result shown on Exhibit Q have any effect on the intrastate earnings assigned to the state of Arkansas in the railroad exhibits?

A. Not specifically; it has an effect on all freight earnings, state and interstate.

Q. How much does it have on intrastate?

A. I don't know.

Q. Approximately, what proportion would you say had an effect?

A. I would not venture a guess on it.

Q. Do you think there would be much intrastate in transit on a twenty-five mile haul?

1201 A. It is hard to say.

Q. What would be your judgment about that?

A. I used to figure the transit for a part of what is now the Frisco Lines, the old Kansas City, Fort Scott and Memphis, where we listed it in every way-bill that applied to it. I have seen plenty of cars that were from 20 to 60 days in going shorter distances than 25

miles. There is no measure for the time a car ought to be in transit, necessarily, that I know of.

Mr. Hill: Proceed.

A. The next is Exhibit R. I am short two or three of these exhibits because I lost one set.

Exhibit R shows the adjustment in the revenue accounts and in the assignment to Arkansas of certain internal adjustments, the adjustment of revenue due to milling-in-transit, and the adjustment of revenue due to cotton compressed in transit and reshipped.

The first column on Exhibit R shows the freight revenue, in total. The second column shows the amount assigned to Arkansas in each month for the commodities named. The third column shows the ratio of the apportionment to the State of Arkansas to the total, as, for instance, in September, 1907, the commodity record showed a total wheat movement covering charges on the whole line of $57,577.62, of which only $350.24 was assigned to Arkansas, or .61%.

In a like way, wheat, corn, flour, other mill products and
1202 cotton are shown.

The adjustment between wheat and flour, corn and other mill products, is purely an internal one and only affects the earnings by commodities; that is to say, what wheat comes into the mill goes out as flour.

Under the plan the Frisco has followed there is an adjustment of the earnings as between wheat and flour to practically put the flour on the basis as if it had moved at the flour rate from the point where the wheat originated. The deductions from revenue on that account are a practical offset to the additions to the other product revenue, that is, the items shown in the fourth column for wheat, corn, flour, and other mill products, for the four months. The red figures substantially offset the black figures. So it is merely a movement from one to the other, but in each instance under this distribution of revenue 12%, a mileage pro rate, substantially, has been charged and apportioned to Arkansas.

Q. You say "in each instance:" I believe there is one exception.

A. That is in cotton and I have not come to that. In each instance of grain it is 12%.

So that for wheat, while only .61 of 1% of the revenue is assigned to Arkansas $1,553.19, of this revenue adjustment is charged against Arkansas, or 12% of the total.

It is my view that this revenue adjustment should follow the original assignment to Arkansas and that in place of as-
1203 signing this $1,553.19, or 12% of $12,943.20 to Arkansas, that only .61% should be assigned, or $78.95.

In other words, I think the adjustment should follow the assignment of revenue to the state.

Q. Instead of road mileage——

A. Yes, sir. Now as to cotton the situation is somewhat different: We are informed by an employe in the Frisco office, a Mr. Frieberg, that when cotton moves in from its originating station to the compress it is not the plan to take into earnings all of the charges on the local way-bill under which it moves. It is estimated as to what

amount would have to be refunded to place the earnings on the basis as if the cotton had moved from its original point of origin to its final destination in baled form on a through way-bill——

Q. You mean in compressed form, instead of baled form. It is all baled.

A. Compressed form, yes, sir. Therefore, the laying aside of this, what might be termed a reserve to meet claims on cotton compressed and shipped, bears a direct relation to the amount of the charges on cotton coming into a compress.

In September, 1907, the total charges on cotton were $7,648.30, of which $446.20, or 6.10%, were assigned to Arkansas, whereas of the revenue laid aside, which amounted to $7,182.52, $1,547.76, or 21.55%, was assigned to Arkansas. That is, a revenue of
1204 $466.20 had to bear a revenue deduction of $1,547.76. Reducing this deduction to the percentage of revenue assigned to Arkansas as against the whole line, we have produced a charge against revenue of $438.13, a difference of $1,109.63.

In the same way the months of October, November and December have been handled, the change in the percentage assigned to Arkansas being made from 12% to a ratio equal to the ratio of the amount assigned to Arkansas to the whole business.

The net result is that Arkansas earnings in this period have been overcharged for refunds and adjustments by $7,276.04.

Mr. Moore:

Q. Does that affect state or interstate revenue?

A. All revenue, it might affect any revenue.

Q. That is the cotton shipment?

A. Cotton, wheat, corn, flour and other mill products.

Q. You are talking now about cotton?

A. It is all in one statement, though.

Q. How much does the compressed cotton to be shipped affect the revenue in that exhibit you have before you?

A. You mean the total freight movement?

Q. I mean that part of it which is represented by cotton compressed and reshipped.

A. The total cotton movement——

Q. I mean how much of your $7,638.46 represents cotton?
1205 A. Only $569.43.

Q. Will you point it out to me on this exhibit?

A. It is in the far corner, the last figure down below (indicating on exhibit).

By Mr. Hill:

Q. Now take up the next one, Mr. Simson.

A. Exhibit S. I am again short one copy, but I will be by that period in a short time.

Exhibit S covers a re-adjustment of the distribution of what the auditor's distribution record characterizes as "Charges and prepay—connecting lines." It is correction amounts, transit, and other like items.

The Company has assigned a flat 12%, or $47,231.76, on a mileage basis to Arkansas. If this amount is apportioned month by month to agree with the actual revenue distributed to Arkansas as against the total revenue, the changes in favor of the amount assigned to Arkansas would be, for December, 1907, $3,199.70; for November, $2,127.27; for October, $505.59; for September, $86.34, a total of $5,918.90.

Q. I don't know whether this exhibit makes that clear: It says, "The difference between the 12 per cent shown above as apportioned to the state and an apportionment calculated on the basis of"—well, I think that is sufficiently explicit of itself. In other words, there was no reason for apportioning it on the road mileage basis when they had the proportion of the revenue assigned.

A. I think the plan is a much nearer correct one than the mileage basis.

Q. Does that mileage have anything to do with this item
1206 at all?

A. No direct relation, no, sir.

Q. Now take Exhibit T.

A. Exhibit T is a statement of the amounts in transit at the end of each month for a period of nine years from July 1, 1905, to June 30, 1914.

The figures for the four months of September, October, November and December, 1907, are shown in red on the first page as the means of setting them out more prominently.

In all this period there were only four instances in which the variation in transit amounts to $100,000. There is only one instance where it amounts to two hundred or more thousand dollars, and that is at the end of December, 1907, when the transit fell off as compared with November from $441,222.03 to $197,518.07, a difference of $243,703.96.

The difference between the amount in transit at August 31, (prior to the period) and at December 31, 1907, is $255,024.84.

It does not seem to me that a transit difference of this sort should enter into a question of an average condition. In the long run the amount in transit will offset, and to pick a test period, or to happen upon a test period wherein the difference at the end of a period burdens the earnings to the extent that this deduction in transit does, does not in my opinion produce a normal period. It cannot be said, necessarily, that the forwarded basis for computing earnings is an entirely incorrect one, although it is gradually being abandoned by the roads of the country. According to my opinion, the aban-
1207 donment is largely due, first, to a greater economy in clerical labor in handling, and secondly, to a more conservative statement of operations.

Q. This exhibit is just explanatory of the situation, as I understand it?

A. That is all, merely to illustrate the situation of the nine year period, and to show that the most acute difference is at the end of the period on which these exhibits are based.

Q. Did you try to get any data supporting that large amount in transit?

A. Yes, we asked for the figures to support the amount in transit, and while we were promised them yet they never could find them.

Mr. Moore: Whom did you ask?

A. Mr. Hoxie, was it not?

Mr. Hamilton: If Mr. Oliver had made a request to me he might have been served.

Mr. Oliver: We asked for them repeatedly.

Mr. Hamilton: Not of me.

Mr. Oliver: Yes, of you, and you went with us to see Mr. Hoxie.

Mr. Hill: There was a figure in question, this balancing and reconciling figure——

Mr. Hamilton: We do not question that these in transit figures as Mr. Oliver shows them are the in transit figures the auditor
1208 has in his accounts. We are not concerned with them one way or the other. We do not question the accuracy. The point I had in mind was that if I had been appealed to I might have helped him out, but I certainly don't recall it.

Mr. Hill: Go on, Mr. Simson.

A. Take Exhibit U, which is nothing more than a writing back of the transit and a reduction of the basis of earnings from a forwarded to a received basis——

Q. Explain the difference between the forwarded and received basis, and just what this exhibit means in its practical application.

A. A forwarded basis is usually restricted to the local business on the line; that is, I mean by that, that—yes, that is a fair statement of it, I think.

Q. By local business you mean the business of that line as distinguished from interline business?

A. Yes, that is the distinction I make.

On the forwarded basis all of the earnings on freight way-billed within the period are taken into the earnings whether the service is completed or not.

On the received basis only the earnings on the way-bills on which the service has been completed and the way-bill reported by the agent as received, are the earnings taken into the accounts.

Q. And this exhibit is to put these accounts upon the received basis?

1209 A. Yes, sir.

Q. What assumption, if any, does that make?

A. It naturally means that to let that remain upon the forwarded basis with this big charge against the earnings of this test period is not a fair test.

Q. It is an abnormal charge against that period?

A. The biggest one in the nine year period.

Q. And none like it in that whole period?

A. No, sir.

Q. Then, putting it upon a received basis, as I understand it, will

carry into this four months all of the freight that was received by the railroad from the first to the last day of that four months?

A. Yes, sir.

Q. And excludes that which was in transit at the beginning of the four months and that in transit at the end of the four months, is that it?

A. It does not entirely cure the situation. If it were possible to take into the earnings that proportion of the charges carried by way-bills for which the services had been performed, it would create an ideal situation. That it is not physically practicable to do.

Q. This would assume, then, that the lapover revenue from August to September would be the same as that of December to January?

A. It simply cut them out.

Q. Cut them out?

1210 A. Yes, sir; that is entirely upon a received basis.

Q. If they were the same it would make the statistics exactly accurate?

A. Yes, sir.

Q. I believe the normality exhibits on revenue for the four months' period compared with the other show that it is fairly constant for this four months' period, compared with the five year period?

A. The variation is very slight.

Q. Then this exhibit is just placing on the received basis the Company's statistics?

A. Yes, sir.

Q. What is the result of it?

A. The result of it is to credit back to the earnings for this test period a net amount of $27,316.22.

I have Exhibit V here——

Q. Take up Exhibit V.

A. Exhibit V is the application of the differences described by Exhibits R, S and U, to the earnings as shown on a forwarded basis and applied to Arkansas under the old formula. It is purely an application of the adjustments called for by these other exhibits just named, to the revenue assigned to Arkansas.

Along with that, however, we have put in some percentage statistics which would seem to indicate that the revenue per ton per mile in these four individual months is not quite a constant factor

1211 until the adjustments are applied. They show for themselves. Shall I read them? They are all on here.

Q. Just call attention to the result of it without going into detail.

A. For instance, before the adjustments are applied the freight revenue per ton per mile for the entire line is 8.10 mills, while for Arkansas it is 7.37 mills. After the adjustments it is 9.27 for the entire line as against 8.67 for Arkansas. In November it is 9.21 entire line and 8.26 for Arkansas, and then 9.41 entire line and 8.62 Arkansas.

Q. What does that prove, or tend to prove, Mr. Simson?

A. Merely that the adjusted figures bear a better relation to the

revenue—a more normal relation to the ton mile as adjusted than it did before adjustment.

Q. The next two exhibits I believe are those that are not typewritten yet?

A. Yes, sir, but I can say briefly that the next two exhibits are the details of some adjustments which we think are fair, in maintenance of equipment and transportation expenses, for the four months ended December 31, 1907. I will have them here tomorrow morning. I left them because the typewriting was not finished.

Q. Mr. Simson, those are the same items we have heretofore gone over with Mr. Hamilton and Mr. Oliver——

A. Yes, sir.

1212 Q. Can you state briefly what those are?

A. Those are largely matters of using factors covering the entire line. When figures assigned to districts were available the application would be something like this: That is, the old formula called for a distribution of fuel for locomotives on locomotive miles. The locomotive miles of each district in and out of Arkansas had been applied to the cost of fuel as assigned to that district.

The basis as used by the Company would take and pool the whole matter and take the total locomotive miles for Arkansas as against the total locomotive miles for the state. That is an illustration. Most of these differences are on bases of that character.

Q. You said a pool for the state: You mean a pool of the entire line?

A. It is a pool for the state and the entire line without regard to district boundaries.

Mr. Moore:

Q. You are speaking of locomotive fuel?

A. That was an illustration, yes, sir.

Q. Is that what you mean, locomotive fuel?

A. Yes, sir.

Q. What period does that apply to?

A. The four months ended December 31, 1907.

Q. Let me understand: What was the change in the new formula?

A. I am not speaking of the new formula at all——

Q. You spoke a while ago——

1213 A. —I am speaking of the change Mr. Hamilton made in the figures, and that, really, Mr. Douglas made after the month of September in the figures of distribution. In other words, he used the broader field when there were narrower confines from which the distribution might be made.

Mr. Hill:

Q. These are the items that I questioned Mr. Hamilton about and that he and Mr. Oliver agreed upon. I think it was about $48,000. They are both in these exhibits that are not yet typewritten——

Mr. Moore: Exhibit W?

The Witness: Exhibits W and X. They are both to come.

Mr. Moore:

Q. They both deal with the matters you have just explained?
A. Yes, sir, only and entirely with those matters.

Mr. Hill: I understand those exhibits have been prepared but were left to be typewritten and have not reached here yet. I believe there is one other thing about those that I want to question now. Mr. Oliver and Mr. Hamilton agreed on the correction of various items in the old assignment of expenses, amounting, in round numbers, to $48,000, and these are the items they did not agree upon.

Q. Has the re-working of these figures caused any change of that $48,000 that has already been agreed upon?

A. It reverses such part of that $48,000 as Mr. Hamilton
1214 changed, as he said, to "prevent the tail from wagging the dog." In other words, it is to make the four months' period on an identical basis right through.

Q. And had to be reworked so if you took Exhibit No. 27-A you would have no repetitions in it?
A. No, sir. That is right.
Q. Then if Mr. Hamilton is right about it the figures in Exhibit No. 27-A would be correct on these particular items?
A. I beg your pardon.
Q. I say, if Mr. Hamilton's contention is right the figures in Exhibit No. 27-A would be correct so far as these particular items are concerned?
A. That is right.
Q. If he is wrong about it and your contention is right there would be no conflict between the $48,000 agreed upon and the figures that you worked out?
A. That is right.
Q. You made them all harmonize?
A. That is right.
Q. Now take your next exhibit.
A. Exhibit Y. Exhibit Y is to a certain extent dependent upon Exhibits W and X, and, of course, is subject to the introduction of those exhibits.

Exhibit Y covers a statement of available net income and return on the value of the property in Arkansas, for the four months ended December 31, 1907, adjusted by corrections as indicated.

1215 In the earnings we have adjusted the freight earnings as shown by Exhibit V, to $893,121.69.

Q. You don't mean that the corrections were that amount, but after correction——
A. After correction. It is adjusted to that amount.
Q. I did not hear you correctly.
A. The other classes of earnings have not been changed, but still stand as shown in the Company's Exhibit No. 27-A.

In the operating expenses an adjustment has been made of the maintenance of equipment and transportation expense, as will be indicated by Exhibits W and X as soon as they arrive.

The maintenance of way and structures, traffic expenses and gen-

eral expenses are without change from the figures as shown in the Company's Exhibit No. 27-A.

The taxes, $45,282, are identical with the figures shown in the Company's Exhibit No. 27-A. Likewise the rental income and hire of equipment are identical.

Q. Was not that Kansas City-Memphis rental corrected there?

A. Yes, sir. This is identical so far as the figures are used as far as rental goes, but the rental dividend guaranteed to holders of Kansas City, Fort Scott & Memphis preferred stock is omitted.

Q. Your reference there really should be to No. 28 instead of 27-A?

1216 A. No, sir. No. 28 does not show the items we have included here; No. 27-A does.

This shows a net income available for return on value of the property of $341,466.08, or at a rate of 6.53%, valuing the property at double the assessed valuation in Arkansas and using a one-third proportion of this double value due to the fact that only four months of the year are covered by the exhibits.

Mr. Moore:

Q. That per cent of earnings is on the entire business, is it?

A. Entire business state of Arkansas.

Q. No distinction between state and interstate, and freight and passenger?

A. No, sir.

Mr. Hill:

Q. Take your next exhibit, Exhibit Z.

A. Exhibit Z contrasts and compares the results as shown by Exhibit Y, being the adjusted Company figures, with a normal average for the months of September, October, November and December, in the five years ended June 30, 1908, 1910, 1911, 1912, and 1913, as shown by Exhibit O.

This contrast shows that in earnings the adjusted earnings are $20,949.02 in excess of the normal average figure. That the operating expenses are $74,461.67 in excess of the normal average figures.

That the net revenue is $53,512.65 less than the normal average figure.

The percentage of this excess of the normal average over

1217 this actual computed figure, based on the valuation of the property is 1.02%.

The percentage of return as shown by Exhibit Z is 6.53%.

The percentage of return as shown by Exhibit O is 7.55%.

The difference, 1.02%, is accounted for as shown hereon.

Q. To state it another way: If you take the Company's figures as corrected by Exhibit Y the company is earnings 6.53% on its property?

A. Yes, sir.

Q. Which is 1.02% below normal?

A. Yes, sir.

Q. If that is brought to normal it will make a return of 7.55% upon the property?

A. Yes, sir.

Q. Take Exhibit AA.

A. Exhibit AA is the statement of available net income and return on the value of the property in Arkansas, for the year ended June 30, 1913, on the basis of the Company's new formula, with sundry adjustments as shown.

The earnings are taken without change from the Company's Exhibit No. 23 and amount to $4,438,170.56.

The operating expenses are likewise taken without adjustment from Exhibit No. 23 and aggregate $3,116,570.39.

1218 The taxes are without adjustment, aggregating as shown by Exhibit No. 22, $251,717.02.

The deduction of operating expenses and taxes leaves a net revenue figure of $1,069,883.15.

The income credits include the net rental income as shown by Exhibit No. 20-A, $128,920.44, to which we have added the Kansas City, Fort Scott & Memphis Railway guaranteed dividend, which excludes it from consideration, making a total rental income of $336,-191.26, to which has been added the net credit to hire of equipment, from Exhibit No. 20, $7,356.03.

Mr. Moore:

Q. You have an item here "Add—Kansas City, Fort Scott & Memphis Railway guaranteed dividends—excluded."

A. Yes, sir.

Q. Explain just what signifi-ance that has, I want it for information.

A. The Company's exhibit 20-A shows the make-up of what has gone to the rental account. There are certain items to the credit and there are certain items of debit. Among the debits is included the dividend paid to the Kansas City, Fort Scott & Memphis Railway for a guaranteed dividend on its preferred stock of 4%, which is charged through the Company's accounts as a rental. Inasmuch as the value of the Kansas City, Fort Scott & Memphis——

Q. Is that this item of $207,000?

A. Yes, sir. Inasmuch as the value of the Kansas City,

1219 Fort Scott & Memphis Railroad property is included in the physical valuation of the property we have cut out the dividend as being a charge against the income, but rather have substituted, or allowed to be substituted in effect, a return upon the value of the property.

Mr. Hill:

Q. It was already in there and to eliminate it you just added it on the other side of the column and that amounts to excluding it?

A. Yes, sir.

Mr. Moore:

Q. Was not the same thing done in Exhibit No. 28?

A. Yes, sir. This is my exhibit, I did not take the figures from Exhibit No. 28.

Mr. Hill:

Q. This is another period, this is 1913.
A. No, all periods are shown on Exhibit No. 28, if I remember.
Q. Oh, yes.

Mr. Moore:

Q. The language you used indicates you are excluding something that was included——
A. It was in 20-A.
Q. But what I want to know is was not that corrected and this item excluded in Exhibit No. 28 by the Railroad Company?
A. I believe it was.
Mr. Hill: It is the same item we had up.
Mr. Moore: I want to have a clear understanding about that.

1220 Mr. Hill:

Q. You are just making the correction here which the Company made in Exhibit No. 28?
A. Yes, sir.

Mr. Moore:

Q. I thought you were assuming the Company had not made the correction.
A. No, sir, I am not.
The Federal Income Tax, as shown by the Company's Exhibit No. 19 amounting to $5,777.68, is deducted leaving a net income available for return on the value of the property of $1,407,652.76.
The value of the property in Arkansas in 1908, at double the assessed valuation, is $15,692,338.00. The additions and betterments applied, as shown by the Company's books, from July 1, 1907, to June 30, 1913, amount to $2,605,957.81, making a total value of property of $18,298,295.81, a percentage of return of 7.69%.
The only difference in this figure from what is shown by Exhibit No. 23, I think it is—the Company's statement of return for the year ended June 30, 1913——
Mr. Moore: No. 22.
A. —is the exclusion of the Kansas City, Fort Scott & Memphis guaranteed dividend, which has later been excluded by the Company in a subsequent exhibit, and the difference in the valuation of the property on which the return is to be made. Otherwise these figures agree in their entirety with the figures as contained in the Company's exhibits, based on the distribution of revenue to
1221 Arkansas under the new formula—revenue and expense under the new formula.

Mr. Hill:

Q. Take the next Exhibit, No. BB.
A. Which is the same thing except that it is based upon the

Company's old formula and requires not only the adjustment of the Kansas City, Fort Scott & Memphis dividend, but the adjustment of that Memphis terminal expense omitted, which is fully described in Exhibit G, and which does increase the operating expenses by $72,107.48.

These old formula figures with these adjustments named, show that the return amounts to $1,463,753.66, which, based on the assessed valuation in 1908, with the additions and betterments applied subsequently, makes a percentage of return of even 8%.

Q. That finishes your exhibits excepting the two that have not yet been typewritten, Exhibits X and Y, does it not?

A. Exhibits W and X, yes, sir.

Q. Mr. Simson, have you carefully studied Exhibit No. 1, the formula, and the exhibits based upon it, as to the distribution of expense between state and interstate, as well as——

A. I have not put as much time upon the distribution between state and interstate as I have upon the distribution to Arkansas. I am somewhat familiar with it but not in as great detail.

Q. That follows and is more or less dependent upon the distribution between line and terminal?

—. ——.

1222 Q. Mr. Simson, from your experience as a railroad auditor and as an accountant, what is your opinion of this division between line and terminal and subsequently between state and interstate as a matter of value to be relied upon by business men in handling their own affairs?

A. I don't think any basis of proration or subdivision which depends upon special information taken outside of the period to which it is to be applied, and which is of such a nature as cannot be verified in its total, is a proper basis for division.

Q. What about the use of a percentage obtained in one period to be applied in another period five years anterior?

A. It would not produce a proper result unless all of the conditions were identical in both periods.

Q. Taking this as a whole—I means the division between line and terminal and state and interstate—submitted to you by a client asking your advice as to whether he could accept the figures thus worked out, what would be your advice to him?

Mr. Moore: That is objected to.

A. I couldn't accept them.

Mr. Hill: I think that is a proper question. I think that is all just now, Mr. Simson.

Mr. Moore: Mr. Hamilton wants to make a statement on the record.

1223 Mr. Hamilton: I want to say something for the benefit of the record:

During the progress of such investigation as was made of our data by the accountants representing the state, we made every effort to see that they had every facility for securing any information they might desire. We went even further than that: We suggested

to the gentleman who had charge of the work records that he at times was unaware of the existence of. I mean that not in any sense of criticism, because no man, however expert he might be, could know the local situation on any given railroad. We all have little practices of our own. I went out of my way a good many times to do that very thing, and placed no restrictions but turned over all of our data in direct possession to the gentleman. I said we placed no restrictions: We placed only one, or, rather, made the request that any request for information should come through me, and that was for the sole purpose of being certain that some over-zealous subordinate did not block the wheels of progress.

Some little statement was made today concerning furnishing Mr. Oliver with certain data regarding these in transit figures. I don't doubt Mr. Oliver's recollection. It may be that he has written asking for information. But I do recall taking him to Mr. Hoxie, our freight auditor, on one or two occasions and endeavored to get them together. I recall distinctly leaving them together one time with the understanding that they would
1224 discuss that very matter. It was a matter that I, personally, had not first-hand knowledge of.

I simply want to make it plain as a matter of statement of fact that we have done all we could to enable them to secure all the facts they desired in those matters.

Mr. Hill: No one has intimated that you have not done so, and the statement that you have taken exception to was that they called on you for that data and it was not there. We did not mean you were suppressing it. We thought it was not in existence.

Mr. Simson: That is true, I very freely admit that.

Mr. Hill: This data simply did not exist.

Mr. Simson: They thought they had it, but they could not find it and they assumed that it must have been destroyed.

Mr. Hill: This is the same matter, Mr. Hamilton, we questioned you about at a great deal of length on a former hearing about the balancing and reconciling item.

Mr. Hamilton: I just wanted to clear up the record. My superiors hold me accountable for the condition existing and I want to have it plainly stated.

1225 L. S. MAYER, recalled, testified on behalf of the defendant, as follows:

Direct examination.

By Mr. Hill:

Q. I asked you yesterday how the engine mileage and train mileage compared, and as I recall it, you made a statement that generally speaking, the engine mileage was 75 to 90 per cent of the train mileage: Is that correct?

A. Yes, sir, that is what I said.

Q. Have you looked into the situation in regard to that as far as Arkansas is concerned since you made that statement?

A. Yes, sir. From the annual report of the St. Louis & San Francisco Railroad by its Receivers to the Railway Commission of the State of Arkansas, for the year ended June 30, 1913, on page 95-A, I find that the freight train miles were 1,060,277, and the freight locomotive miles 1,121,044.

There is a difference, then, without carrying the fractions, of 6% between the freight train miles and the freight engine miles.

On passenger I find that for the same year there were 1,004,452 passenger train miles and 1,030,660 passenger locomotive miles, and that the passenger train miles are 97% of the passenger locomotive miles.

There is a discrepancy—without carrying fractions—of 3%.

1226 Mr. Moore:

Q. 1913?

A. 1913. The reason I did not give you the 1914 figures which included these two months of November and December, 1913, was that that report has not yet been filed with the Railway Commission.

From the annual report of the St. Louis & San Francisco Railroad Company to the Railway Commission of the State of Arkansas, for the year ending June 30, 1908, I took these figures—the statistics for the State of Arkansas were not kept separately by the Railroad and were, therefore, not reported.

Mr. Hill:

Q. Those were the Arkansas statistics you have just read for 1913?

A. Yes, sir. However, they do give the statistics for the entire line for the year ended June 30, 1908, which includes the four months of 1907, that is, September, October, November and December, 1907.

I find that the freight train miles are 10,575,710 out of freight locomotive miles of 10,944,337, a discrepancy of about 5%.

The passenger train miles are 8,633,458 out of 8,818,323, a discrepancy of about 3%.

Mr. Moore:

Q. Mr. Mayer, please state what you mean by the term "discrepancy?"

A. I mean that there is a difference in the number of freight train miles or passenger train miles to the freight locomotive and
1227 passenger locomotive miles of that much.

My reason for clearing up this item at this time is that the more nearly the freight train miles are equal to the freight locomotive miles the less valuable is the engine ton mile, or, the less criticism can be directed at my criticism of the engine ton mile.

Mr. Hill:

Q. These figures would indicate that the engine ton miles and train miles in Arkansas are more nearly the same than they are in the

country generally, as you understood it from your testimony yesterday?

A. Yes, sir.

Q. What is that difference due to, light engines, double-headers and things of that kind?

A. That makes more locomotive miles than train miles, but there is little difference in Arkansas between the freight train miles and the freight locomotive miles, and less difference between the passenger train miles and the passenger locomotive miles. That is all.

1228 Mr. WILSON E. SYMONS, recalled, testified on behalf of the complainant, as follows:

Direct examination.

By Mr. MOORE:

Q. Have you a copy of your testimony before you?

A. Yes, sir. I have looked over the stenographic notes of my testimony, including the direct and cross-examination, and find them very well transcribed. I observe, however, and have made note of five or six changes which I would like to make in order that they may fairly represent my views in the matter and be of such a character that I can subscribe to them as my deposition or testimony. There are only three of these items, however, that are of much importance or fundamental. Each of these three are my own mistakes or errors. Two of them are errors of commission and one is an error of omission. They refer to the definition of "line" and "terminal," and appear on pages 1010, 1011 and 1043.

The question of line and terminal was defined by myself at four or five different places in the testimony. In these two instances, however, I did not correctly express myself as I intended to and I now wish to make that correction so that they will represent my views.

Mr. Moore: You have no objection to that, have you, Judge?

The Witness: I will be glad to bring the notes over there.

1229 Mr. Hill: Let him make his statement. Let the testimony stand as it is and let him make his corrections. If they are clerical errors, of course, he may correct them. I understand they are not.

Mr. Moore: I understand it may be a slip of the tongue.

Mr. Hill: If it is let him make his explanation.

A. On page 1010, the second paragraph, the words "line" and "terminal" should be transposed.

Mr. Moore: Instead of saying "the second paragraph" designate the number of the line.

A. I have entered the pencil corrections on the page mentioned.

Q. All right.

A. In the fourth line from the top, page 1010, the word "terminal" should be eliminated and the word "line" interposed in its place.

Mr. Hill:

Q. I cannot understand that. What is the connection in which that was used, Mr. Symons?

A. In answer to a question propounded by yourself, Judge Hill, I made the following answer:

"Making up and breaking up trains is terminal work."

I should have said it was line work, as I had previously said and afterwards said.

1230 Q. That referred to making up and breaking up trains in division points, is that what we were discussing at that time?

A. Farther back on page 1009 my answer to your question was: "I count all switching at terminals and switching to industry tracks, that is terminal."

Then the question is:

"I am talking about the local freight engine between division points where it makes up and breaks up trains, does switching and sets out cars at local stations, and, as I understand you, you count all of that as line?"

Q. What did you answer to that?

A. My answer is:

"Making up and breaking up trains is terminal work no matter where you do it. If make up and break up a train it is terminal work under the formula, and I have made my study and reached my conclusions with due regard to that formula."

I wish to change that reply.

Q. I think you are right as far as stations are concerned.

A. I am, but I am answering in a general way.

Q. The formula says that making up and breaking up trains in division points is line. I think the formula is wrong, but that is what it says. What I was inquiring of you about is making up and breaking up between division points, and you said, and properly said, that that was terminal work: Do you want to change that?

A. Yes, I want to change it with this qualifying clause:

1231 "Making up and breaking up trains is line work and switching at stations is terminal work, and I have made my study and reached my conclusions with due regard to that formula."

Q. Is that the way you want your testimony to read now?

A. Yes, sir, but I don't want it considered as covering the switching of trains at terminals.

Q. At division points, you mean?

A. No, sir, at division points—no, I mean at stations on the line.

Q. How do you classify the work of a local train switching at a station, do you classify that as line or terminal?

A. Line. Making up and breaking up trains I classify as terminal work. All stops necessary to the movement of the train, such as water, coal, railroad crossings or signals, I call as line work.

All setting of cars into industry tracks to receive loading, taking them away after loaded, and all switching on the line, I term as terminal work, and I wanted that as an answer to this. This is somewhat ambiguous. Will that be satisfactory for me——

Q. Whatever you say is your thought about it I accept. I don't want any change in your testimony of yesterday, but I want you to have the benefit of any explanation or change of opinion on it that you want.

1232 A. On page 1043, the ninth line from the bottom, the words "line charge" I want to change to read "terminal charge."

Q. What is that connection?

A. It is in answer to your question with respect to setting a car in to a cotton compress to receive a load of cotton.

Q. That illustration I questioned you about, about cotton moving from Arkinda to Ashdown and Hope?

A. It was just prior to that. The one later on is as I wish it to stand. This is the first one and it is an error. I wish it to be corrected.

Q. I called your attention to the fact that Arkinda would be, under the example I put before you, a terminal, is not that correct? I think I corrected you——

A. I think you did in the next page or two, but this particular question—shall I read it?

Q. Yes.

A. "Q. Assuming that the load of cotton came from Arkinda, was taken to Ashdown, taken out of the cars there and delivered to the compress, probably stayed there a day or two, or a week or two, or some length of time, and then delivered again to that same Frisco road, carried on to Hope, and at Hope delivered to the connecting carrier: How many terminal expenses would be attaching to that on the Frisco road?"

And my answer is: "I would say it was a terminal expense, a terminal operation."

Then I think there was some cross discussion and I said,

1233 "No, it would be a line charge." I want now to correct that and adhere to my first response.

Q. Each of those is a terminal charge?

A. Yes, under the formula. And then the two next answers are a confirmation of this erroneous second reply. I wish to correct them.

Q. Read that, I haven't seen your testimony, Mr. Symons.

A. Then your question was, "At the compress?" I said, "At the original point of loading."

That would adhere to the line, but that should read terminal,—changing this corrects the second.

Q. So that I may get your idea: Taking our assumption that Arkinda is a terminal, that is the originating point?

A. Yes, sir.

Then you asked, "You would consider that line at the original point, would you?" And I said yes. I wish to correct that, that should be terminal.

Q. Yes, that was clearly a slip.

A. Yes, but it was my error and I want to correct my own mistakes.

Q. If I had understood you to say terminal I would have corrected you right there, because I know there would be no dispute that that would be an originating point.

A. At page 1011 your question was:

"Q. I just want to know which way you classified that:
1234 You classified that as terminal, did you not?"

My answer is, "Terminal switching is all terminal charge." That is an error. I should have added as a qualifying clause, "Except making up and breaking up trains, which is a line charge," and I want to correct that particular answer so it will read that way. That is my omission.

Q. Don't you want that to read further, "line charge under the formula in division points only?"

A. That would be a very good addition to put to what I have suggested, because that would draw the line of demarcation between what we know as a division generally speaking, or a terminal, and terminal under the formula. So I will ask you to make it read that way.

Q. All of this is going down and this will be your substituted testimony.

Mr. Moore: In other words, this explains it.

The Witness: The addition to appear is that "except when making up and breaking up trains, which is all line at division points."

Mr. Hill:

Q. If it would not bother you on that, I want to ask you a question along that line—are you through with those corrections?

A. Yes, sir. The others I have made in here in pencil. They are just some typographical errors, or changing the word "an" to "A"——

1235 Q. We have always conceded those rights to a witness in this case.

A. There is nothing else fundamentally wrong at all.

Q. If you find a word wrong we are not going to question that.

Mr. Moore:

Q. There is one thing now for information: As I understand, making up and breaking up trains occurs only at division stations and not way stations?

A. Yes, it is a division terminal operation; that is, division terminal as we use the word "terminal" in railway operation.

Q. And that is the sense which you refer to it and wish to correct it?

A. Yes, sir. I don't mean the terminal as expressed strictly in the formula. I mean making up and breaking up trains at division terminals where they are re-classified.

Cross-examination.

By Mr. Hill:

Q. That is the same point I want to bring out more fully since you clarified your definition: Under this formula the making up and breaking up of trains in division points is classified as line?

A. Yes, sir.

Q. As I intimated a while ago, I think that is wrong, and I will ask you if you think that is right?

A. Well, Judge, I prefer not to express an opinion on that for the reason that my employment in going into this case was
1236 to perform certain duties under what you might call a submission, which is this formula, and I have tried, as near as I could, to make my study and reach my conclusions under that, and I have not any criticism to make of the formula anywhere.

Q. Well, I have. You have been put here as an expert, and I very cheerfully state a most intelligent one, and I want the benefit of your opinion on that question. I think that I am entitled to it. I have no idea what your views are, but whatever they may be I would like the benefit of them.

A. I believe it is right and fair, although I say that I have not gone into some of the features of it that I may go into later on, but so far I have not been able to find what I could say looked to me as a fault or weak spot.

Q. I am talking about this one particular spot in classifying the making up and breaking up of trains in division terminals as line expense.

A. Yes, sir, I think it is all right, Judge. I am not able to find any flaw in it.

Q. Suppose that train is broken up at a way station after shifting and going around there: It is almost identically the same sort of service, is it not?

Mr. Moore:

Q. Do they make up and break up trains at way stations?

A. There is a little of it at junction points.

Mr. Hill:

1237 Q. And frequently at stations where there are a good many cars to set out and others to pick up?

A. The service is different in this way: It is done by different men and under different conditions.

Q. I understand that, but still it is done, the train is made up and broken up in more or less degree at way stations, particularly where those are junction points, is not that a fact.

A. Yes, but not to such an extent as it is in the yard.

Q. That is true, but it is done. Every important town you go into where there are a whole lot of cars to pick up and make up, that train has to be made up and broken up in a more or less degree, has it not?

A. Some of them, but it does not apply to all of them.

Q. I did not say all of them, but that is a usual and frequent way of handling freight, is it not?

A. It is quite an item in train operation.

Q. Is not the effect on the cars and on the engine in doing work of that kind at these way stations substantially the same as in terminals?

A. The physical effect of a blow of the same force on a car, or the wear on the car would be the same, but there doubtless are fundamental and just reasons for dividing the expenses for the maintenance of a terminal, a large terminal, as we call it, where trains are

made up and broken up as against the way station that makes it quite proper to make that subdivision.

1238 Q. What are those fundamental reasons? That is what I am trying to find out.

A. I couldn't explain those myself.

Q. I don't think anybody else could, could they, Mr. Symons?

A. I would not say as to that, Judge.

Q. The physical effect of these two things are exactly the same, are they not? It is the handling of these cars in switching them, the making up and breaking up of the train, and all those various things that you know so much about and I know so little about, is it not?

A. There is this difference in the cause and its effect on the Company's treasury: This work is done at way stations by engine crews and train crews, but on a mileage basis, while at large stations they maintain switchmen and tracks and a separate force of men.

Q. I am talking about the physical side of it: It does not make any difference on the physical side of it whether the engine is——

A. Not in the effect on the equipment, no.

Q. I am talking about the physical side: Broadly speaking, there is no difference in the effect on those cars and that engine that is switching around in the way station yards and breaking up trains there than at division points.

A. Yes; while there is no difference between the blow of the same force, but they are not handled as roughly at way sta-

1239 tions as they are in the yard.

Q. I suppose that is a fact. I don't know, but you say it is. I am not willing to accept that, but whether or not as roughly handled, the injuries they do receive are the same character of injuries, from the same cause and in the same character of service, identical in every way, but possibly not quite so great?

A. I can explain that briefly in this way: If you break a coupler in a main terminal where it is a line charge, and if you break the coupler on the other end of the same car at the way station where it is a terminal charge, the price is the same.

Q. From these impacts in switching service the cars receive practically the same injury they would receive in the terminal, except they may be a little more roughly handled in the terminal?

A. The difference is in the degree.

Q. In degree, but in other respects it is the same thing?

A. I think the degree is probably much greater than the general public and laymen can appreciate.

Q. The degree of rough handling is your position, as I understand it?

A. Yes, of any equipment.

Q. Your theory is that there is more inefficient work in the yards and division points than out on the road?

1240 A. I should say it was a combination of partial indifference among the switchmen, and maybe largely due to the cramped condition of yards making it necessary to handle cars very quick and fast, and, therefore——

Q. That is the inefficiency of the Company or the Company's employes, one or the other?

A. Yes, sir.

Or the result of the demands of the public and the Company's financial condition which renders them unable to enlarge their yards and have a sufficient number of switch engines and cars to do their work.

Q. There is a broader proposition of the way the Company will buy a lot of lines in Texas, if we want to go into a discussion of that it will be a pretty broad field, but I don't think that is in this case, do you?

A. It may not enter into the case as a rate case, but I think it is a factor in yard work all over the country.

Q. This buying up of non-productive lines in Texas is also a question that affects the rates and cost of operation, is it not?

A. That is a financial matter that I am not prepared to pass upon.

Q. The other is a financial matter: Are you prepared to pass on that?

A. I was talking of it from the operating or physical side, and as I see it in railway operation, regardless of whether it affected
1241 them adversely or not, they frequently tell me they do not have yard room enough because they haven't money to put the tracks in.

Q. The pinch in money matters will come from this squandering of the Company's money as well as adverse legislation, as they choose to call it?

A. As a rule, if money has been squandered it results in some one having to suffer, but whether there has been any squandered here or not I am not prepared to say.

Q. I am not saying that, but I am putting a hypothetical case like I understood you were putting one. The squandering of money will find its reflection in a cramped yard as much as it will anywhere else?

A. The same as it would in a man's personal affairs.

Q. But we are wandering away from our physical side. A friend of mine refers to almost everything as "physical facts," but these physical facts that you have been testifying about occur in making up and breaking up trains at way stations, and also occur, probably in a greater degree, in yards: Do you say it is right to classify the injuries from one of those as line and the other as terminal?

A. Yes, I think it is.

Q. All right. If that is your opinion let it go.

A. Yes, sir. It is essential in preparing the train for its movement over the road.

Q. Both of them are essential for that, are they not?

A. Well, the second operation is in connection with
1242 moving traffic, but this is picking up business that originated at a station and that was not in the classification yard to be put into the original train.

Q. And also shifted around a lot of cars in that train that neither originated nor were delivered there?

A. That is pretty generally true with a long freight train that the cars are not always in station order, and in picking up a car that would come under the head of terminal charge for its handling, or the engine might have more of other cars that were moving under a line charge.

Q. Certainly.

A. That would probably be cheaper to do that than to go in and get the car alone and then come back and make two or three movements to take the car back somewhere else.

Q. I have no doubt it is good operation, but at the same time here are a lot of injuries occurring to those cars which you are classifying differently from what the same engines would be classified in a division yard: Do you think that is right?

A. I think the line and terminal division is a fair one.

Q. On this particular point?

A. Yes, I think it is. I don't think you could put all of them in either place.

Q. So you just split it by the division yard, do you?

A. Between line and terminal, yes, sir.

Q. If they do this switching in a division yard it is line, and if they do the identical same thing, with identically the same
1243 results, out at a way station or junction point, it is terminal. If you think that is correct, why, all right.

A. If it is a car that is moving under line conditions it would be a line charge, but if it is a car picked up at a terminal station, anything in connection with the receiving or delivering of freight is a terminal charge.

Q. And the consequent effect is that the balance of those cars would also be a terminal charge under your distribution?

A. I don't get that.

Q. I mean, if they went to a way station and took out one or six cars and shifted the train around that would do some injury to that engine and the balance of those cars, and you classify that as terminal although that same injury occurring in a division yard you classify as line?

A. That probably would even itself up in the cars that might be similarly damaged in doing line work, or in doing terminal work you might have a line charge.

Q. Then you justify that on the offsetting proposition?

A. It occurs to me that there has to be a happy medium struck in some of those things where you cannot draw the exact line of demarcation, as between each individual car or each individual instance.

Q. Then you justify this because you think one might offset another?

A. That is one of the reasons I would offer for it. I don't think of any other reason at present because I have not given that
1244 particular phase of it any extended study farther than that I believe the method of making the charge in the formula is fair.

Leslie N. Simon, recalled.

Cross-examination.

By Mr. Moore:

Q. You have filed a number of exhibits here showing the per cent of return on the property of the Railroad Company?
A. Yes, sir.
Q. I don't just understand and I would like you to state, if you will do so, which one of your exhibits properly represents the return upon the Railroad Company's property? I did not get it if you did so.
A. I think the logical one is the average return based upon the old formula, which I think is Exhibit O, if I remember rightly.
Q. That is all I wanted to know.

Mr. Hill:

Q. You mean the old formula as corrected with these additions, or the old formula before the revision was made?
A. We made no revision in getting that average per cent. It is in the exhibit which shows a return of 7.55%.

Mr. Moore:

1245 Q. If you are not certain that it is Exhibit O look at it. Here is Exhibit O (handing exhibit to witness).
A. Yes, that is the one.

At this point the taking of testimony was adjourned until Thursday, November 5, 1914, to give the plaintiff time to make preparation for cross-examination and testimony in rebuttal.

1246 St. Louis, November 5, 1914.

By consent of the parties an adjournment was had to Monday, November 9, 1914, at 1:30 o'clock P. M.

St. Louis, November 9, 1914.

Met pursuant to adjournment as above on Monday, November 9, 1914, at 1:30 o'clock in the afternoon.
Present: Same parties as heretofore.
The following proceedings were had:

Cross-examination of Mr. L. S. Mayer, continued.

By Mr. Moore:

Q. I believe you testified that you were Auditor of the Oklahoma Corporation Commission.
A. Yes, sir.
Q. That body has suits with a number of the railroad companies operating in Oklahoma, which are similar to this case, except those relate to passenger rates.
A. Yes, sir, similar, but five or six roads instead of one.

Q. And also in that Corporation you are interested, I take it, in all the questions involved in this case insofar as they may affect those cases in Oklahoma?

A. Yes, sir. My idea in making a study and doing what work I have in the Arkansas Case, has been along the line of further preparing myself for the Oklahoma Cases.

Q. You have attended the hearings in this case, haven't you?

1247 A. Almost all of them, yes, sir.

Q. You testified as to what you term a loss in potentiality of locomotives on the Frisco Lines. Please state more specifically on what you base your conclusions, and particularly your definition of the term "potentiality of a locomotive."

A. (Referring to blueprints in re November and December 1913:) The transportation and mechanical departments, assisted by the Engineering Department, make up from the engine descriptions and performances for a test period the maximum rating that can be handled by an engine, under normal conditions, between stations of the railroad.

Q. How is that done?

A. An engine, as has been testified to by Mr. Hamilton, is purchased for its power or its ability to pull tonnage over a road. These engines are of certain tractive power. For instance, the tractive power of engine No. 188, as reported to the Corporation Commission of Oklahoma, is 18,700 pounds. That varies all the way up to 37,300, and different tractive powers for different engines. That means that is the amount it is expected to pull under normal conditions. The engines are purchased with that understanding, that they will furnish that certain tractive power.

When a test is made to determine the tonnage rating of engines, it is a matter of putting behind the engine all it can handle reasonably, in the judgment of those making the test.

1248 For instance, on the Frisco road take engines 26 to 43, for example; they are rated between Kansas City and Olathe, southbound, 365 tons.

Q. What are you quoting from, Mr. Mayer?

A. From page 15 of time-table 27.

That same classification of engines No. 11, northbound, is rated 690 tons.

That means that any engine from No. 26 to No. 43, under normal conditions—that is, with fair rail and so on—will be expected to handle 365 tons from Kansas City to Olathe; whereas, from Olathe to Kansas City it is expected to handle 610 tons. There are different ratings of the same engines in different directions and on different divisions.

Q. You spoke about the tractive effort of 18,700 pounds of an engine. Is that the tractive effort of the cylinders or is it the tractive effort of adhesion?

A. It is the tractive effort of the engine. That is what it is ex-

pected to pull, and it is so shown in the reports to the Corporation Commission of Oklahoma.

Q. I hand you a book of engine diagrams of the Frisco road, giving the power of an engine and the different causes that enter into it. The one I hand you represents engines 188 and 189. That is an engine you spoke of. Look at that and tell me whether there are not two kinds of tractive efforts shown on that diagram, and if so, which is shown in the figures you gave awhile ago, 18,700 pounds.

1249 A. According to the report which was filed with the Corporation Commission, and the tonnage rating as shown in the time-tables of the Frisco Lines, I find that this engine about which we were speaking is rated on this diagram you have handed me as tonnage class 18. And that Class 18 is the one which the Frisco has reported to the Corporation Commission of Oklahoma as being a tractive power of 18,700, which they have used in making up the tonnage rating of engines; and is shown in this book to be the tractive effort of the cylinders.

Q. What is the other effort?

A. This is the first time I have seen it.

Q. Read it.

A. It says here, "Tractive power of cylinders 18,700"—which is the same as reported to the Corporation Commission of Oklahoma. It also says, "Tractive power of adhesion 19,700." They evidently used the tractive power of the cylinders in reporting to the Commission and in giving the tonnage of the engine in the time-table.

Q. What is the difference between the tractive effort of engines in the cylinders and in adhesion?

A. I don't know. I am testifying only to the facts as shown in the different statements, all which were furnished by the Frisco lines.

Q. Do you find any tractive effort shown in pounds in the time cards you were reading from?

1250 A. The tractive effort which I read to you as 18,700 is the same as shown in the time-table as 18,700.

Q. The question I ask you is whether you found any statement of tractive effort in pounds? in the time card?

A. No, sir, not in pounds. But the reference is direct to the same foundation in the time card as in the report furnished to the Commission.

Now, I made some further investigation along this direct line and that was to find out whether the engines of the same class had the same rating in the same directions and on different divisions, and I found, and have before me, the tonnage rating by classes for three or four divisions, and I find that the ratings between different points and in different directions for the same class of engines is entirely different.

Now I can quote you from the time-table if you like.

Q. Please read from the Oklahoma report the tractive effort in pounds of engines No. 43, No. 92 and No. 2232.

A. They report to the Oklahoma Corporation Commission that the maximum tractive power of engine 43 is 13,500; of engine No. 92 it is 12,600; and of engine No. 2232 it is 11,900.

Q. Are not all those engines shown in the eleven ton class in the time card?

A. (After examining time card:) They are, yes, sir.

1251 Q. And don't they all take the same rating between various points on the railroad?

A. Yes, sir, I think they do. That is, they take the same rating according to the time-table as between the same stations, but the rating changes in directions.

Q. Don't these engines take the same rating on the parts of the track you described awhile ago in connection with one of them, that that engine did, and that you read?

A. The three engines referred to take the same rating between Kansas City and Olathe and Olathe and Kansas City.

Q. And they have different tractive effort, haven't they, as shown by what you read in the record a moment ago?

A. Yes, sir, there is a different tractive effort there.

Q. You have not stated your definition of the term "potentiality of a locomotive."

A. I want to finish my answer to the other question first.

Q. Very well, go ahead.

A. That substantiates my position that the engine ton mile is an inaccurate method of dividing between freight and passenger.

Q. Those figures in pounds you gave represent the tractive effort of the cylinders. Now the tractive effort of adhesion—is it the same, or is it different?

A. I don't know anything about the tractive effort of adhesion. I am taking my information from the time-tables and from

1252 the report of the Frisco Railroad to the Oklahoma Corporation Commission.

Q. You don't know what effect the tractive effort of adhesion would have?

A. No, sir. The information I am giving you is that which is used in the time-table for figuring the rating of engines, and not from theoretical propositions.

Q. That information you gave is only that which grows out of the tractive effort of cylinders: That is true, isn't it?

A. I don't know how they compile that book you have.

Q. I didn't ask you how they compile that book. But if there are two different elements, the element on which you based your statement is the tractive effort of the cylinders?

A. The element in this particular case was the same as was used or as shown for the tractive effort of the cylinders of this particular engine, and this particular tractive effort 18,700, as shown in the time card. The book you have is the effort which is shown as classification 18 in the time-table.

Q. You said 18, didn't you?

A. You showed me engine 188. That is the one I was talking about.

Q. The engines I was talking about were No. 43, No. 92 and No. 2232.

A. Let me have your time-card book and I will answer
1253 the question.

Q. Before you do that I want you to state if the eleven-class on that time-card does not include engines of more than 11,000 pounds of tractive effort?

A. I don't know. I haven't checked them up.

Q. You read three into the record, didn't you?

A. Whatever I gave you.

Q. I want you to answer the question yes or no: Don't those show it?

A. I don't remember what the figures were.

Q. Go back and check them up if you don't know it.

A. What is your question?

Q. If all those engines have not a tractive power of more than 11,000 pounds, as they are shown on that time-card? You can answer that question yes or no.

A. I will answer it if you will give me a chance.

The tractive efforts of those three engines moved are above 11,000 pounds. But the condition that these engines were in at the time this rating was made up, indicated the condition they were in and put them all in the same class. That is, that this engine 13,500 could not be expected to pull more than the engine of 11,900; and that was probably due—although I wasn't there at the time the test was made—to the condition the engine was in; that is, it was only half way efficient.

Q. But you don't know anything about it.

A. That is what makes the difference.

1254 Q. That is simply your inference.

A. That is my judgement based upon the manner in which these reports are made.

Q. And not based upon actual knowledge of the condition of the engine?

A. Not of this particular engine, no, sir.

You asked me if these three engines were in the same class: Engine No. 43 is in tonnage class 11; engine No. 92 is in tonnage class 11; engine No. 2232 is in tonnage class 11.

Q. They all have different tractive effort?

A. Due to the condition they were in at the time the test was made. That indicates the condition of power; so far as tractive power is concerned it was not the same.

Q. Do you know whether any one of those three engines was used in making a rating test?

A. I wasn't there at the time this test was made.

Q. You don't know anything about it.

A. Not this particular one. I am testifying to the time-table and rating as shown there.

Q. And you are not testifying in regard to any knowledge of these engines?

A. Not those particular engines but merely from the facts as

shown in the time-table and the engine rating book. Engines of the same tractive power, if kept in 100% efficiency, would naturally be expected to be in the same class. Now, if en-
1255 gines of different tractive power were in 100% condition, such as has been testified to in this case, then they would be in different classes.

It is natural that the greater the tractive power, if the condition was the same; that is, if they were in 100% efficiency condition, as is claimed here, the engines would be expected to pull a greater train load.

Q. I see from this diagram that engine No. 43 has a tractive effort of cylinders of 13,500 pounds; and a tractive effort of adhesion of 12,000 pounds: Now I want to know if both those elements do not enter into the determination and ascertainment of what an engine can do. I am not an engineer and do not know about those things and I have to put it into the plain language of a layman.

A. (After examining book.) This tractive effort of adhesion certainly must be taken into consideration, but how far I do not know. The tractive effort of cylinders is what puts these engines into the different classes, according to this book, which shows this engine No. 43 is in tonnage class 11.

Q. I don't know whether there is anything in it or not, but would the differences that there might be between the tractive effort due to the cylinders and that due to adhesion, in these different engines, have any effect in determining the power of the individual engine?

A. I don't know anything about that diagram. I am
1256 testifying from the facts as shown in the time-table.

Q. We will pass that and get back to the question I asked you. I particularly wanted your definition of the term "potentiality of a locomotive." Tell us what you know about that. I don't mean on the time-card. I just want to know what your definition is, independent of the time-card, in regard to any particular engine, what the potentiality of the engine is.

A. The potentiality and class of any engine as used on the Frisco——

Q. Leave the Frisco out. I mean any engine used in the United States.

A. It is a misnomer in practical railroading. It is something used by the Frisco in this case. I am going to explain to you how it is used on the Frisco.

Q. I understand that the term "potentiality" is applied to engines generally.

A. On the Frisco.

Q. You mean it is not applied anywhere else except on the Frisco?

A. I never heard of its being used, although it may be in some places.

Q. I do not want any explanation based on the time-card. You have already told me all you know about that. But I want your

definition, abstractly, of the term "potentiality" when used in connection with a locomotive.

1257 A. My investigations made me come to the conclusion that "potentiality" as used in this case, is the maximum, gross loading on a particular section of track.

Q. You mean the engine's ability to pull its maximum, gross rating?

A. I mean as taken from the rating.

Q. You mean the rating represents that?

A. The rating, and district traveled, is supposed to represent the potentiality, and is so used in this case by the Frisco.

Q. What elements or factors are there for determining the power of a locomotive?

A. I cannot testify as a mechanical expert. I know just grossly, but not sufficiently to advise you.

Q. You do not understand those factors in their proper relation to each other?

A. I understand them in their application to railroad operation.

Q. One is the tractive effort of the cylinders, and another factor is the tractive effort of adhesion: Do you know what the proper relation of those two efforts is?

A. I cannot testify from the standpoint of the mechanical construction of a locomotive; but I can from the actual facts as shown in the time-table.

Q. Is not a knowledge of the design, construction, operation and maintenance of locomotives necessary to enable you to testify

1258 as to the effect of the ratings that may be contained in time-tables for the guidance of railroad men in the use of those engines?

A. No, sir. That information is all right for the man who is constructing the locomotive, but not for a man who testifies from facts shown in the time-card and on the C. T. 64 reports of the Company.

Q. Has the superintendent anything to do with the capacity or the potentiality of an engine?

A. I don't know how they made up these reports, but they are the actual reports.

Q. I didn't ask you that. I asked you if the superintendent has anything to do with the capacity or potentiality of an engine—not these engines, but an engine?

A. Frankly, I don't know how they made them up.

Q. Assuming now that we are speaking of an engine that was never presented on a time-card at all. The question I asked you is does the superintendent have anything to do with the capacity or potentiality of any engine?

A. I presume it would be taken into consideration in the designing of an engine.

Q. In practical operation does it have anything to do with it?

A. Yes, sir, certainly; the bigger a train load the slower it would move.

Q. What is the tractive power?

1259 A. I don't know what the technical definition of tractive power is. That is a proposition of engine design and does

not enter into this matter of the engine ton miles being used as a factor of division between freight and passenger.

Q. Do you know whether the tractive power and the adhesive weight of the engine have fixed relations, constant all the time?

A. It would not seem so from these different tractive powers of engines being rated in the same class, because if the engines are not capable of the standard they could not haul the train load. That is evident from these classifications.

Q. Do you know, as a general rule, the tractive power and adhesive weight are the same?

A. If engines are not maintained properly they would not maintain their tractive effort. That is evidently the case here.

Q. Would they have the same tractive effort on different grade lines?

A. The same engine would have the same tractive effort, but it might not pull the same train load, and evidently would not.

Q. How would it be at different speeds?

A. I don't understand the question.

Q. Would it pull the same train load at different speeds?

1260 A. The greater the train load the slower it would move and the more damage the same engine would do to the track. The greater the train load the greater the damage to the track.

Q. You mean by the engine?

A. And the cars, both, yes.

Q. You stated in your examination in chief in discussing this question that engines that have the same tractive power ought to weigh the same——

A. Under this theory, yes.

Q. If you have no knowledge of these matters how can you claim to be qualified to testify on that subject?

A. This theory of the engine ton mile assumes that an engine always represents the train load. Now if engines, as reported by the Frisco to the Corporation Commission, and which are I presume the same as the book of diagrams, have not the same rating for the same weight engines, then if this theory is followed to a logical conclusion, that these trains are loaded to 100%, then their relation between freight and passenger is thrown clear out of line.

Now, to find out just what difference that would make, assuming that trains pull 100%, which I have shown to be erroneous——

Q. 100% of what?

A. 100% of their rating.

Q. You mean of their potential rating?

1261 A. Yes, sir, their potential rating—that is the same thing as their rating, the way I am referring to it.

I took the weight of the engine, reduced it to tons, and divided it by the tractive power, with the result that the tractive power per ton of weight, which is an engine ton one mile, varied all the way from 127.1 pounds per ton of weight for engines 558 to 567, clear through to 190 pounds of tractive power per ton of weight for engines 950 to 955.

That means that following the theory as shown in Exhibit 1, the

engine ton mile, even assuming for the moment that these trains were actually loaded to 100%—which they were not—that in itself the result of the use of such an erroneous factor disturbs the relation between freight and passengers; and, consequently, all other divisions of the formula which follow that division.

Q. That is your answer to my question, is it?

A. Yes, sir.

Q. Mr. Mayer, isn't it true that in the comparisons you have given in the record, of weight versus tractive effort, you have quoted the tractive effort based upon the size of the engine's cylinders, and ignored the adhesive tractive effort shown in the same record (referring to the diagram) in which the factor of the engine's weight upon her drivers is considered?

A. I have not ignored the facts so far as they have been shown in the time-table, as shown by engine 188, which uses the
1262 engine's tractive power. I stated I did not know the technical manner in which the tractive power was made up. Yet that factor must be correct, because it was used in making up the rating of engines, which is used in correcting or watching the efficiency of railroad operation.

Q. Is the rating of an engine as contained in the time-card not simply used as an efficiency mark for officials to attempt to attain in the service in which the engine is engaged?

A. No, sir; it is used so the Chief Dispatcher and the yardmasters at different points can load these engines as heavy as is reasonable to get them over the road.

Q. Isn't it a fact that the service rating of an engine is controlled by many conditions other than the exact potential power—such as weather conditions, speed conditions, conditions growing out of the character of freight to be handled, and other conditions of that sort incident to the service?

A. The only item of that kind, which I find under "Special Instructions"——

Q. I am not asking you about special instructions, but about the fact.

A. I am reading the facts from the time-card of the Central Division, in which it shows the following:

"Under exceptionally bad weather or rail conditions, when the assistant superintendent's office cannot be reached, 10% less than published rating may be handled, and the circumstances reported to the assistant superintendent.

1263 Another one is:

"The loading of local trains out of terminals will be governed by the Assistant Superintendent, it being the intention to have the local trains do all the station work and clear the road."

Those are the exceptions and not the rule. In other words, it is expected that every engine will handle its tonnage.

Q. Isn't it a fact—I will repeat my question—that the service rating of an engine is controlled by many other conditions than the exact potential power, such as weather conditions, speed conditions, and conditions growing out of the freight to be handled?

A. The tonnage rating, except for local trains, is not changed.

Q. I am not talking about local trains.

A. The actual handling is controlled by weather conditions and that is the reason why the engine ton mile is not a good basis for a division between freight and passenger—that is one reason.

Q. How about speed?

A. Although it was assumed here that these engines were always handling 100% of their train load, yet in my judgment the speed of a train affects the actual handling behind it, but not the rating as shown in the time-card; because there is no rating shown for fast freight trains.

Q. Do these conditions that affect the rating remain uniform or do they fluctuate?

A. I don't understand that.

Q. The conditions that affect the rating, such as speed, weather, and things of that sort, are they uniform or do they
1264 fluctuate?

A. Speed and weather, if they have been taken into consideration, are a different proposition than the actual handling. You confuse the rating and the actual handling of the train.

Q. I am asking you if the capacity or power of an engine to perform is not affected by weather conditions and the speed at which the train is required to go. You said awhile ago they were. Now I ask you if those conditions are uniform or do they fluctuate—I refer to speed and the weather.

A. The weather fluctuates always, of course.

Q. I am glad you found that out.

A. Of course, that affects the actual loading of trains.

Q. All I asked you was whether those conditions fluctuate. You can say whether the weather fluctuates or whether the speed of the train fluctuates?

A. It does, therefore, the actual train load fluctuates. And that is another reason why the engine ton mile is a good method of dividing, because an engine will weigh just the same whether weather conditions are good or bad; but the train load behind it will vary.

Q. What do the rating marks in the time-card indicate as to the power of the engine?

A. They indicate that, for instance, between Monett and Chester engines of No. 11 class are expected to handle a train load
1265 of 275,000 gross tons.

Q. Without regard to weather conditions?

A. That is under normal conditions.

Q. Under normal conditions; that is, ideal conditions?

A. Yes, sir. The time-table says:

"Under exceptionally bad weather or rail conditions, when the assistant superintendent's office cannot be reached, 10% less than published rating may be handled, and the circumstances reported to the assistant superintendent."

Q. Suppose the superintendent's office can be reached, then what?

A. I don't know what the Frisco rule is. I presume they cut them down to what is a reasonable train load.

Q. Weather conditions enter into and are recognized there as a controlling element of performance of that engine. Isn't that true, and don't you know it?

A. No, sir, I don't know it, because there is another thing here. It says:

"Where an engine is incapable of handling the regular rating engineers are required to so report from the first open telegraph station, giving the particular disability of the engine and the tonnage the engine can handle."

For instance, we find loss of time where with the same engine, and practically the same conditions, one engineer can handle 20% more train load and get it over the road than another engineer can.

Q. You are talking about engine failures, and switching off the matter I am on. Please answer my questions. We are not talking about where an engine happens to break down. But the
1266 conditions that affect the performance of an engine up to its rating in the time-card. I ask you if weather is not a very important element and controls and affects the ability of the engine to perform the rating given in that time-card?

A. That is one of the elements.

Q. You know that?

A. Certainly I know it.

Q. When you say an engine performs less than its rating there that may be accounted for by the weather conditions that existed at that time?

A. Some of it, yes.

Q. Or by the character of the freight behind that engine, whether dead freight or expedite freight?

A. That has something to do with it—and that is another reason why the engine ton mile cannot be used accurately for a division between freight and passenger.

Q. Why haven't you said anything about it, if you recognize it as an important element in this case?

A. There are a lot of elements I haven't mentioned here. I could not think of all of them.

Q. You know the rating of an engine would be affected by accidental and fluctuating causes and that there necessarily would be a deviation from the time-card rating? As a matter of common sense, you knew that, didn't you?

1267 A. Yes, sir.

Q. You knew that, did you?

A. Yes, sir.

Q. And yet you condemn the rating because the performances of the engine are not up to it, without any reference to the conditions that might have affected them? You did it without reference to those things now, and also in your examination in chief?

A. No, sir. Because the engine performances for the two months, November and December, 1913, showed that these engines were not handling 100% of their rating, as mentioned in this case, and that is why the engine ton mile was not fit for a factor of division between freight and passenger.

Q. Do you know how many of these engines met with adverse weather conditions?

A. No, sir. That did not enter into my statement for the reason that I merely show the per cents these engines were handling to show that they were not handling full tonnage rating.

Q. You mean the time-card rating?

A. Yes, sir, as shown on the time-card. These factors you speak about, the failure of an engine to handle its rating on account of the condition of the rail and on account of weather conditions and on account of the inability of the engineer to make time—

1268 those are only additional reasons, to my mind, why the engine ton mile representing always the same weight, but always different trains, is an improper way to divide between freight and passenger.

Q. How about speed?

A. I should have added speed in there.

Q. Does grade have any influence at all in determining the performance of an engine?

A. That affects both the tonnage rating and the performance. Of course, this tonnage rating is made out for each particular section of track, and these engines are expected to come up to their ratings.

Q. Going up and down every hill?

A. According to the time-card, yes.

Q. You mean every hill in the district?

A. I mean the tonnage rating of engines is changed between different stations and these engines are expected to handle between these particular stations that particular rating.

Q. Suppose they are ascending and descending grades?

A. They are supposed to have been taken into consideration in rating the engines.

Q. Do you know what is meant by "the ruling grade" in the rating of an engine?

A. No, sir, I don't know anything about the technical construction of these tonnage rating formulas. I am merely taking

1269 the rating as shown on the time-card and as shown on these C. T. 64 reports.

Q. If an engine is rated at 1,000 tons, does it mean the engine has the ability to move that weight, simply, or that it can draw it at any speed desired, five, ten, twenty-five or thirty-five miles per hour?

A. I don't know what mechanical knowledge the rating shown is made up on, but my information is that this is the rating all trains are expected to handle, except local trains.

Q. Isn't it necessary you should have that in order to determine the causes of the difference in the rating and the loads handled by the engine? Isn't it necessary you should have that in order to determine these things about which you have been testifying?

A. It would be a reason why the engines did not handle their ratings.

Q. That is not the question. I asked you if it was not necessary for you to have that knowledge, to enable you to testify?

A. No, sir, it is not necessary, for the reason that I am testifying to the fact that these engines are expected to haul a certain train load, and have not done it, and that they do not represent the right factors for dividing between freight and passenger.

Q. You say these engines are expected to pull a certain load: At what speed is an engine expected to pull the load, as indicated by the rating on that time-card?

1270 A. I don't know what speed they used here. This is the rating they expected to get out of their freight movement at the speed they expected to get it:

Q. Does it represent more speeds than one?

A. I don't know on what basis they made it up.

Q. Does it represent variable speed?

A. I don't know.

Q. Do you know, or can you tell me whether that represents the drag load the engine can pull on the ruling grade in the district on which it operates?

A. I don't know.

Q. If you don't know that, you don"t know anything about the subject you have been testifying about.

A. I know a whole lot about it, for the reason that I have shown you particularly from the Frisco time-card and from 1121-A, that regardless of all these facts you have mentioned—speed, weather, and so on,—that the traffic is not balanced; that engines are not pulling their full train load; this is the actual condition, of course; and that an engine going south will pull one number of gross ton miles and going north will pull a different number. All of which is the actual condition and is not based upon theory of how the rating is made up.

Q. Does not the rating in the time-card reflect the load the engine is supposed to be able to move simply at drag speed on the ruling grade of the particular district?

1271 A. I don't know. All they show is the tonnage rating and by their exceptions they show they expect every engine to pull that rating.

Q. Would the engine be expected to haul the rating shown on the time-card at any variations that may occur in the speed?

A. I don't know what basis they made up the tonnage basis of engines on, but it is presumed to be as nearly as possible the actual requirements so far as the movement of traffic is concerned. There are some exceptions, which I quoted to you.

Q. Take speed.

A. At the speed the management thinks proper.

Q. Suppose an engine is rated by the time-card at 1,500 tons. That means it can pull 1,500 tons at drag speed over the ruling grades of the rating district?

A. That is not necessary for my information in this case.

Q. Can you interpret the meaning of the rating contained in the time-card without that knowledge?

A. Yes, sir.

Q. Now, let us see: If the rating means, as the question assumed a moment ago, that the engine can pull a given tonnage at a drag speed on the ruling grade, wouldn't it follow necessarily it could not pull that amount at a speed of 25 miles an hour?

1272 A. If that was not the given speed, yes.

Q. I said, "at drag speed." Do you know what I mean by drag speed, or by a speed of 5, or ten miles an hour?

A. If that was drag speed, yes.

Q. Wouldn't it necessarily mean that an engine could not pull that given tonnage at a speed of twenty-five or thirty miles an hour?

A. Over the same district, yes.

Q. In order to properly interpret the rating in the time-card, don't you necessarily have to know whether it means the ability to pull a given tonnage over the ruling grade at drag speed; or whether the engine could pull that same tonnage over the ruling grade at a speed of fifteen to twenty miles an hour? Wouldn't it be necessary for you to know that in order to determine the meaning of the rating in the time-card?

A. No, sir, for this reason: We will assume that engine No. 200 weighs 250 tons; it has a maximum rating between A and B of 3,000 tons, northbound. Now, southbound, take the same engine, weighing 250 tons, and it can pull (taking into consideration your speed proposition) only 1,500 tons. That just shows that if you were to divide maintenance of way, assuming as you have in this Frisco formula, that the weight of the engine represents the train, in one case you have pulled a train of 100% and in the other case of only 50%.

1273 In other words, you get more use out of the right-of-way or out of the railroad, when you move 3,000 tons than you did when you moved 1,500 tons; yet your factors as entering into the division between passenger and freight, would assume, as has been testified to here, that the engine had handled the same train load; that it represented the train behind it. While I have shown you from the C. T. 64 reports, form 1121-A, and from my example, that such are not the facts.

Q. Are you through with your argument now?

A. Yes, sir.

Q. If so, I will ask you a question, and I want you to answer the question I ask.

Suppose the grades on the rating district are steeper going north than they are southbound; and assume that the engine is loaded according to its ability to pull a given weight at a drag speed: Wouldn't it necessarily follow that the rating of that engine going north would be different from its rating going south?

A. Yes, sir, it would. That is the reason why this engine ton mile is not an accurate method of division; because northbound this engine pulls 1,500 tons and southbound it pulls 3,000 tons.

Q. Doesn't it represent the full efficiency of the engine in each direction, in overcoming the obstacles that are occasioned by the grades on that track in going north and south?

1274 A. If the engine was rated to 100% of its ability to handle a train load, and if it were actually loaded to 100% of its

ability, then, naturally, it would have all it could handle. But I have here shown that these engines have not handled their maximum train load.

Q. I didn't ask you what was done. Please answer my question. What I asked you is this, and it is a simple question: If under the conditions mentioned—that is, a difference in the gradients moving north and south, affecting, as I have explained, the capacity of the engine, would not the engine, going in both directions, be performing to its full efficiency?

A. If it had behind it all the train load it could handle it would be doing all it could. But if the amount it pulled was different, it would not be a correct figure for dividing between passenger and freight.

Q. I didn't ask you that. Don't volunteer what I don't ask you. I didn't ask you anything that would justify that remark. Please answer my question and make your answers responsive to the questions.

Can an engine go as fast when pulling 1,500 tons as when pulling 500 tons over the same piece of track?

A. That depends entirely on the size of the engine.

Q. The same engine, I mean. It would probably be the same size on both occasions.

A. If the maximum an engine could haul over a given
1275 district was 500 tons, at say fifteen miles per hour, and a train load of 1,500 tons was put behind it, then, of course, it could not handle the 1,500 ton train as fast as it did the 500 ton train. But, at the same time——

Q. That is not an answer to my question. I will repeat my question.

I am referring now to the same engine and am assuming that the engine can pull 1,500 tons.

Q. Now can it pull those 1,500 tons as fast as it can 500 tons, on the same track, and in the same direction?

A. I don't understand your question.

Q. Can an engine which is capable of pulling 1,500 tons run as fast when pulling 1,500 tons as it can when pulling 500 tons, over the same piece of track and in the same direction?

A. Assuming you mean 1,500 tons is the maximum either engine can handle.

Q. Let it go that way.

A. If 1,500 tons is the maximum which that engine can handle at say eight to ten miles per hour, over a given piece of track, and under the same conditions, if you were to place a train of 500 tons behind it, it could move at a faster rate of speed, but it so doing the right-of-way, or railroad, would be used three times as much, so far as the train load is concerned, in one instance as in the other.

Q. I didn't ask you that. That is not responsive to my
1276 question.

Suppose an engine has a rating of 2,500 tons: Can that engine run as fast pulling fifteen hundred tons as it can pulling five hundred tons, over the same track, and in the same direction?

A. That is a question which is pretty hard to answer for the reason that an engine which has a maximum of 2,500 tons, at a certain rate of speed may be safe to move over certain bridges and around certain curves; whereas, if it moves three times as fast it would not be safe to move it.

Q. Mr. Mayer, in all good faith, now, do you think that is an answer to my question?

A. Yes, I do. Each time the train load varies the division between freight and passenger is that much actually disturbed. Whereas, the factors which are produced by the movement of the engine are the same, under this theory.

Q. Suppose an engine rated on the time-card of 1,500 tons is pulling dead freight—that is, freight which does not require expedited service—on a schedule of 15 miles per hour: What effect would that speed of 15 miles per hour have on the rating?

A. If the weight of the train was the same and the speed required would be greater in one instance, then, of course, the per cent of rating handled would naturally be less again disturbing the relation between freight and passenger.

1277 Q. You say "if the weight of the train is the same:" Suppose this engine is rated at 1,500 tons, and that that rating represents what the train can pull at drag speed over the ruling grade, and that it does in fact haul or go over the track at a speed of 15 miles an hour?

A. And pulls 1,500 tons?

Q. Yes.

A. Then it handles 100% of its rating.

Q. Suppose an engine pulls perishable freight, which has to be moved at 25 miles an hour and the train was reduced, what effect would that have upon the performance of the engine as compared with the time-card rating?

A. If an engine of 1,500 ton rating in the time-card——

Q. I am not talking about that engine. I am talking about another engine.

A. It just depends upon what the rating was. If the rating was 1,500 tons and on account of it being "time freight," and it was advisable to move it very fast, so they cut it down to 750 tons, then it would be pulling 50% of its rating.

But the train load and use of the railroad would be greater in the instance where a full train load was moved, than where only half a train load was handled, although the weight if the engine would be the same in both instances.

Q. And the lighter train was moved at a faster rate of speed: You assume that, do you?

A. Your question was predicated upon that. But at the
1278 same time it was moved at a faster rate of speed the additional thought comes to me that the engine would be making the same number of factors for division between freight and passenger as if the train load had been the same and the speed had been the same.

Q. Mr. Mayer, did you understand me in the question I asked and

you answered a moment ago, to ask you what effect these things would have upon the use of the track? Did you understand that was embodied in my question?

A. Yes, sir, I did.

Q. I will have the question read. I want to see what grounds you had for that. Here is the question I asked you:

Suppose an engine had to pull perishable freight that had to be moved at 25 miles per hour: What effect would that have on the performance of the engine as compared with the time-card rating?"

Do you see anything in that relating to the use of the track or the effect upon the track?

A. I am testifying here in an accounting case; and it is necessary to add that to show that this engine ton mile is an improper factor to divide between passenger and freight.

Q. You volunteer that statement?

A. Yes, sir, to make it clear.

Q. I want to tell you it is absolutely improper for an witness to interject matters of that sort in an answer to a question, where it is not responsive. And while there is nobody here to control
1279 you I ask you as a matter of self respect to refrain from it and have some observation of the rules that should control the conduct of witnesses. I ask you to do that.

A. I am giving you the best answer I can, bearing in mind that this is an accounting case.

Q. You have no right to bear anything in mind, but to answer the questions that are put to you.

A. I am giving you the full truth in this case.

Mr. Hill: I don't think your position is well taken in this case, Judge Moore. You have asked Mr. Mayer several times if he were competent to testify to this point, without this technical skill, and he has answered you why he thought so.

Mr. Moore: I have asked him nothing about the effect of these things on the track. All of his testimony is volunteered.

Judge Hill: It goes back to your question that he could not testify without technical knowledge of these things.

Mr. Moore:

Q. Suppose the same engine that was referred to in my last question had to haul a train of freight which required very greatly expedited movement—say a speed of 35 miles per hour: What effect would that have upon the performance of the engine as compared with the rating in the time-card, if the length of the train or the number of cars was reduced on account of the character of the freight?

1280 A. I cannot answer that without bringing in the division between freight and passenger, Judge Hill.

Mr. Hill: Answer it in any way you choose, making it as responsive as you know how.

A. An engine of a given rating in the time-card, say of 1,500 tons, is expected to move a train at a high rate of speed, and they find it

necessary to reduce the train, the percentage of tonnage handled for that train will be less than 100% which will again disturb the relation between freight and passenger in this division.

Q. You don't know, then, do you, that it is a fact that that engine would be performing its full efficiency with relation to the rating, in the case assumed in the question, as it would if it were hauling a larger train at a lower rate of speed?

A. It would be performing its particular duty on the freight run in question, but at the same time would make just as many factors for the division between freight and passenger as it would if it had handled a full train load. Of course, my answer is predicated upon a freight train.

Q. Suppose an engine rated in the time-card rating referred to as 1,000 tons encountered a stiff head wind: Would that have any effect upon the performance of the engine in regard to its time-card rating?

A. Yes, sir, it says here on the time-card of the Frisco that it can handle ten per cent less than the published rating under
1281 bad weather conditions. Sometimes a stiff head wind may have an effect and sometimes not. It could vary ten per cent.

Q. Assume the pressure from a stiff head wind, blowing at a rate of ten miles an hour would cover that ten per cent, which you say is according to instructions—the train master and the superintendent cannot control the speed of the wind. Suppose it happened that the wind was blowing 20 miles an hour: What effect would that have upon the performance of that train in relation to its rating?

A. Basing my reply upon your question, the additional 10 miles per hour would make it necessary to reduce the train further. I would say the train would have to be reduced in order to get over the road, with the result that it would be handling a different train load than it would at some time when the wind was not blowing at 20 miles an hour.

Q. Wouldn't it require the exertion of the same force of an engine of the same power to pull the reduced or lighter load against a heavy head wind?

A. I presume it would require, under your theoretical example, but the reduced train load would take up all the power of the engine; yet at the same time the engine would be making the same number of factors for the division between freight and passenger as if the engine had handled a full train load, or the same train load in each instance which the C. T. 64 report showed was not the case.

1282 Q. Now take an engine with a given rating in the time-card reference to the district over which it has to run and tell me if the train master or superintendent who has charge of the loading would load it as near to its potentiality as shown in the time-card rating, at zero temperature as he would in the summer time?

A. No, sir, he would not.

Q. Why not?

A. In practical demonstration it has been demonstrated that in zero weather it is pretty hard to move a heavy train.

Q. Of course, the engine would weigh just the same as it would in

the summer time and be using its full efficiency with the one loading as with the other, where governed by weather conditions?

A. No, sir, it would not. Full efficiency would be the engine rating, and what it would handle would be the actual performance.

Q. Didn't you say a while ago that the full efficiency would be the rating under normal conditions?

A. Yes, sir.

Q. Do you call a high head wind, and zero temperature in this climate, normal conditions?

A. No, sir. And that is why I say this same engine—we will say engine 200—in the summertime might handle 3,000 tons and in the winter time handle 1,500 tons, and yet at the same time this
1283 engine would weigh the same amount and make the same number of engine ton miles.

Q. It would take the same sized engine to haul 1,500 tons in cold weather as 3,000 tons in warm weather.

A. In this example, for the sake of showing how a train load would be different with the same engine, yes. That has been conclusively shown, I think, in form 1121-A, which is based on the C. T. 64 reports.

Q. In looking at this time-card before me I see that engines 26 to 43 are in the 11 ton class, and that the rating of those engines between Monett and Chester is 275 tons; and from Chester to Fort Smith 350 tons. You have testified that that rating is made with reference to normal conditions of service: Now, suppose an abnormal condition arises, under which the engine could haul only one-half of 275 tons between Monett and Chester and only one-half of 350 tons between Chester and Fort Smith: Would not the engine be putting forth as much force in pulling the smaller load under the abnormal conditions and be performing as efficiently as it would in pulling the tonnage at which it is rated, under normal conditions?

A. It would not be performing as efficiently when pulling half a train load as when pulling a full train load according to the rating; yet the engine would still have the same weight.

Q. Isn't it a fact that the actual performance of an engine is largely controlled by the fluctuating conditions incident to
1284 the service, such as cold weather or hot weather, high head winds, the character of the freight necessitating expedited movement, and other conditions of that character, so that the time-card rating is taken only as a general guide or mark of the highest efficiency the engine is capable of exerting on a given division under normal conditions?

A. I will answer that first by saying no; and then adding that the time-card rating is the expected train load. That if it varies, such as it actually does, from northbound and southbound, and from day to day, as is revealed on form 1121-A old form 1190, that the fact it hauls a different train load due to different conditions, weather and so on, only adds to the fallacy of the engine ton mile as a method of dividing between freight and passenger.

Q. You mean the expected train load under normal conditions?

A. The only two exceptions I find are those of bad weather and engine failure—the only things I find in the Frisco time-card.

Q. Is there anything in my question referring to a division between freight and passenger?

A. No, sir, the answer I made to you was predicated upon the assumption that this is an accounting case here.

Q. I would be glad if you would predicate your answers upon my questions. I think that would be better.

A. I answered your question.

1285 Q. Can you determine the extent to which an engine may perform or fail to perform 100% service under the rating contained in the time card, without a consideration of the incidents of the service of each particular run or trip—or can anyone do it? And are not those elements controlling factors measuring the capacity of an engine and determining its performance as compared with the time-card rating?

A. Well, of course, all of those elements to which you have made reference affect the actual performance of the engine and reduce the train load from what the engine ought to pull to what it actually does pull. But part of my answer is yet that regardless of what that train load is and it varies from time to time, and day to day, and in direction, that the engine produced the same engine ton miles anyway; and that that production of the same number of engine ton miles, regardless of the train load, to me indicates that the engine ton mile is an improper method of division.

Q. If that is correct, Mr. Mayer, then doesn't it follow that those who prepare these time-cards created in them impossible conditions in rating the tonnage capacity of the engines?

A. No, sir, it does not follow, for this reason: They expected these engines, to pull these train loads under normal condition, and once in a while an engine will pull its rating.

Q. Under normal conditions?

A. Under normal conditions.

Q. It does this once in a while?

A. Occasionally, yes.

1286 Q. Don't those who prescribe them recognize that fact and know that as conditions fluctuate the performance of the engine will differ from the rating that is contained in the time-card?

A. Those who compiled this time-card did recognize that slightly; in fact, they said that the tonnage on a train would be permitted to vary ten tons under or fifteen tons over the published rate; and further, that sometimes an engine is incapable of handling its regular ratings, and the engineers are required to report. So those things are taken into consideration.

Q. Is that ten per cent the limit of the variation that is allowed or contemplated in the time-card?

A. That ten to fifteen per cent?

Q. Well, fifteen per cent, whatever it is: That is one variation?

A. There is another variation if the engines are incapable of handling the rating; that is, engine failures.

Q. What do you understand that to mean?

A. Also there is a variation of local trains, that local trains will be expected to do all the station work and clean up the road.

Q. All those conditions are recognized in the time-card, in the rating of tonnage and engine, are they not?

A. No, they are not recognized in the rating; they are recognized in the instructions.

1287 Q. I did not say in the rating, but in the time-card which contains the rating of the engine: Is not that true, are they not recognized? Answer yes or no.

A. The time-card has special instructions under which conditions the rating may not be handled.

Q. Do not those instructions recognize the fact that there are fluctuations which may affect and change the normal conditions that are assumed to exist?

A. They affect the performance of locomotives, but not the rating. The rating is always the same. The performance is different under these instructions.

Q. What makes the performance differ from time to time?

A. Bad weather or rail conditions, and engine failures.

Q. Engine failures? I am not talking about accidents.

A. There is other than accidents affecting engine failures, but the general instruction is that the tonnage of a train will be permitted to vary ten tons under or fifteen tons over the published rating. That is the only instruction in this time-table.

Q. They are not allowed to vary any more than that, are they?

A. According to the time-table under which the employees work.

Q. The men who prepared that time-table did not recognize or take into consideration the fact that an abnormal condition might arise which will prevent the engine from performing less than

1288 the——

A. Yes; paragraph 5 says that under exceptionally bad weather or rail conditions, when the assistant superintendent's office cannot be reached, 10% less than the published rating may be handled.

Q. Suppose an engine that is rated at, we will say, 3,000 tons, can pull 20 carloads of dead freight at 12 miles an hour——

A. That is the rating between two points?

Q. I suppose that is the rating. Suppose it requires the same tractive effort, the same force, whatever that may be—I won't name it—the same force and power of that engine to pull three cars of bananas at the rate of 40 miles an hour, loaded with three cars of bananas and required to make speed on account of the perishable nature of that commodity at the rate of 40 miles an hour: Would that engine not be performing the full extent of its efficiency in pulling those three cars of bananas that it would in pulling the twenty cars of dead freight?

A. It would not be pulling its rating, if that is what you mean by efficiency. It would not be performing up to its efficiency, no, sir, not in gross tons, it would not.

Q. If the service required the transportation of the bananas in the

way that I have mentioned, would not the service rendered by that engine in transporting the bananas be as valuable and as
1289 efficient a service with reference to the capacity of that engine as the service in pulling the 20 cars of dead freight?

A. I can't answer the value part of that at all, because that brings in some other elements, but so far as the efficiency of that engine is concerned, it would not be pulling its tonnage rating, and if it would not be pulling its tonnage rating on the banana train, on the other train that it did, then the railroad got more use in gross tons out of the dead freight train than it did out of the banana train.

Q. What do you mean by efficiency?

A. Efficiency? I did not put any definition on it, but what I mean is that it was not pulling the tonnage rating between particular points.

Q. Does not efficiency express itself in terms of service rendered or performed?

A. Well, efficiency is not a good word alone. I don't believe you can use it that way. Efficiency in tonnage may be expressed, and is expressed here, in tonnage rating of engines.

Q. How about efficiency in speed, Mr. Mayer?

A. Well, speed is an element, but there are other elements beside speed. There is no relation between the tonnage and the speed in the example that you give. Efficiency is like the word "value". It cannot be defined that narrowly. The engine ton mile being used for division between freight and passenger, if in one
1290 instance it handles 20 cars of the same weight as it does 3 cars of the same weight, then it seems to me that the engine is representing speed, rather the train load behind it represents speed in that case.

Q. What is the horse power of an engine?

A. I don't know.

Q. What is the tractive power of an engine?

A. It is shown in this report here to be different for different engines.

Q. Is it represented by the tonnage that is contained in these time cards?

A. That is used in figuring up the tonnage rating.

Q. Does that represent the tractive power of the engine?

A. Yes, sir.

Q. Its power to pull?

A. What it will pull, yes, sir.

Q. That time-card means that the tractive power of that engine when it is full will pull what the tonnage rating is at a drag rate of speed under normal conditions?

A. I don't know whether it is drag speed or what.

Q. If it is drag speed that is what it represents?

A. You are assuming that?

Q. Yes, I assume it is drag speed.

A. I don't think your assumption is right, but I will assume it in this case.

1291 Q. Assuming that, in that sense it represents its tractive power, does it not?

A. Well, partially, yes.

Q. You say partially: In what respect does it not do it?

A. Because you have two engines of different tractive power having——

Q. I am talking about one engine, not two engines. I want to know with reference to the tractive power what 375 tons' rating in that time-card means, if it means its ability to pull.

A. These engines of Class 11 are expected to pull that much, yes. sir.

Q. It is expected to pull that much under normal conditions and at whatever rate of speed was in contemplation by the party who made that time-card?

A. That is right.

Q. That is absolutely correct, is it not?

A. Yes, sir.

Q. That eliminates the point about which you were doubtful?

A. Yes, sir.

Q. When it pulls that load under normal conditions, and at the speed that was contemplated, it is putting forth its full tractive power, is it not?

A. Well, yes, under the tonnage rating, 100% of its rating,

1292 yes.

Q. Its full tractive power as represented by its rating?

A. Yes, that is right.

Q. And that rating represents the power and potentiality of that engine, does it not? That is what it is put there for, you call it the potentiality of that engine?

A. That is right?

Q. Is not that the term that is used in describing it, the potentiality of the engine?

A. Yes, sir.

Q. Potentiality is the power which it can pull, is it not?

A. Its rating.

Q. It represents the power of the engine?

A. Its rating, yes, sir.

Q. The rated potentiality represents the power of the engine?

A. Yes, sir.

Q. Tell me what difference there is in the exertion of that power in pulling 375 tons, we will say, at 10 miles an hour, assuming that that was contemplated under normal conditions, and the exertion of the same power in pulling one-half that tonnage at the rate of 20 miles an hour. Tell me what is the difference in the power exerted by that engine in those two performances.

1293 A. Assuming that that would be its maximum average, 20 miles an hour——

A. No, I don't assume that. It may be able to go 50 miles an hour. I am assuming that that is the performance.

A. In one case it performed 50% of its duty and in the other case 100%, but at the same time, the engine will weigh the same and make the same number of factors——

Q. I did not ask you what it would weigh.

A. —therefore, the engine ton mile does not represent the train behind it.

Q. Was not the train on the fast run when it had the lighter loading, was it done because the exigency of the service required that it should run faster?

A. I presume that is the reason they cut it down in this example.

Q. Was it not run to the full service that it was called upon to perform?

A. It might be running to the full service it was called on to perform, but yet it would be making factors of division that would be unreasonable and improper.

Q. I will assume that the rating of the engine I referred to was 250 tons in normal conditions; that it could pull 20 cars at a rate of 10 miles an hour, and that that was its maximum rating. I will further assume that that engine could not pull ten tons at the rate of 20 miles an hour—20 cars at the rate of 10 miles an hour——

1294 A. Twenty——

Q. Yes. Here is the point I want to call your attention to: In the one case you have an engine that has power to overcome the increased speed and pull the cars that are attached to it 20 miles an hour. In the other case, you have an engine that cannot do it.

Now, in the first example I gave you, is not the 350 ton engine performing a service that the engine that has the lighter loading could not perform? and that it requires an engine of the higher rating to perform?

(Question read.)

A. I don't know where your 350 ton engine comes from in this example, but ratings of engines are not based upon cars, they are based upon the gross tons behind the engine. There is nothing in the time-table that shows anything about the number of cars, and the tonnage rating is shown to be the same for the same class of engines over the same track.

Q. And the same speed?

A. There is nothing shown about speed in the time-table. The rating is shown for classes of engines between certain points, or stations, I should say.

Q. Suppose one engine is rated at 350 tons and another is rated at 250 tons in the time-card; that each one of those ratings represent the load that the engine can pull under normal conditions at, we will say, eight miles an hour. Assume that the engine which is

1295 rated at 350 tons has the power to pull five carloads of bananas at the rate of forty miles an hour. The engine which is rated at 250 tons cannot perform that service for want of power:

Is not the engine that is rated at 350 tons performing a service which is just as efficient with reference to the business and operations of the railroad, in hauling the five carloads of bananas, as it would in hauling the load of dead freight at the rate of eight miles an hour?

A. No, sir, it is not, and further, the engines are not rated on speed in this rating. There is no different rating shown for fast trains and for slow freight.

Q. That is the very point I want to call your attention to: Does not the rating represent the power of the engine to move weight against such obstacles as the viscissitudes of weather, wind, varying speed, varying grades?

A. The rating is shown for the maximum train load which can be reasonably handled under usual conditions. Now, when fast trains—when time freight trains, for instance, are made up, or other fast freight trains, they reduce the loading; that is, they reduce the train load back of the engine, but in so doing they have not affected any reduction in the weight of the engine. Therefore, the engine that goes south, we will say, on a slow freight train handling 3,000 tons can go north on a fast freight train with 1,500 tons, with the result that while its actual performance is different, the engine is
1296 producing—if the distance is the same, of course—the same number of engine ton miles, which shows the fallacy of the use of the engine ton mile for the division between freight and passenger. It all falls back upon that one thing, that the engine ton mile is not representative of the train behind the engine.

Q. The whole objection to the engine ton mile basis to which you referred in your last answer, is that you think that a freight engine is accumulating the same engine ton miles even though it is hauling less than its maximum capacity, and for that reason charges too much to the freight service?

A. No, that is just one objection. If it would always handle the same per cent of its capacity then there would be less objection to it, but the trouble is one day it will handle 50%, the next day 60%, the next day 95%, and the following day 40%, and result in these averages that I quoted from form 1121-A. Those are two objections to it.

Q. That is one and this last which you just mentioned is the other?

A. Those are only two of my objections to it.

Q. And it results in charging too much to the freight service?

A. No, it is inaccurate. That is my objection.

Q. Does it charge too much for freight service?

A. No—I can't answer that right now. It is inaccurate for division because sometimes the train load, the use that is
1297 secured in gross ton miles will be 50% and the next time 100%.

Q. What is its effect in that way? Does it result in overburdening the freight, does it charge too much to the freight, in your judgment?

A. Well, it is incorrect in that it produces the wrong factors, and, while it may not charge too much, it is wrong. That is what I was getting at. The engine ton mile does not charge enough to freight, in my opinion.

Q. Why not?

A. For the reason that, expressed in gross tons, the gross tons of freight is so much greater than the gross tons of passenger.

Q. How do you justify that answer if the passenger train is fairly constant in size?

A. I am not talking about size, but about the gross tons handled.

Q. Well, in gross tons handled, if you want to put it that way.

A. For the reason that the gross tons of freight are so much greater than the gross tons of passenger. We may have a passenger train coming along with an average of 4½ cars that will probably weigh 50 tons each. That would be 225 tons for the passenger train, and we would have a freight train coming along with, say, 3,000 tons.

Q. Do the same fluctuations occur in passenger service as
1298 in freight, say 50% of the ordinary load?

A. According to the testimony presented in this case it would appear that so far as passenger was concerned that they always had an engine of the requisite size for the trains and the speed that was required. I couldn't get that for passenger, because no form 1121-A is compiled for passenger.

Q. Don't you know, Mr. Mayer, that they make up a consist of the passenger train from day to day, with the exception that occasionally there may be another car added to it?

A. I know they do. I read some of them in the record. But that don't have anything to do with the potentiality of the passenger engine.

Q. You said the freight trains fluctuate 50%?

A. I said I read something in the record from 44 to 93, I think.

Q. If that is the case would not the engine ton mile basis charge too much to the freight?

A. No, sir; it would charge an incorrect amount in the first place, because an engine weighing 200 tons will come along one day pulling 3,000 tons and the next day come along pulling 300 tons. It might be due to weather conditions; it might be due to the business not being there.

Q. It might be due to speed, might it not?

A. Speed may have something to do with it, but the fact remains that this engine is pulling a different train load.

1299 Q. Those fluctuations all grow out of varying conditions of the traffic, do they not?

A. Absolutely so. The passenger business, on the other hand, is fairly constant; that is, if they have a passenger engine suitable for the train, which has been testified to here, considering the weight of the train and the speed, and they don't vary very much, it would look like they are fairly constant.

Q. Mr. Mayer, what would be the effect of those fluctuations you speak of in the freight service, today a train pulling—did you say 3,000 tons, and tomorrow 300 tons?

A. Tons, I said.

Q. Did you say 3,000 tons?

A. Yes, sir.

Q. And tomorrow 300 tons?

A. That would mean that the engine ton mile did not represent the train.

Q. How would it be with passenger, would it not more nearly be represented?

A. It is claimed that they have an engine that is always the correct size for the train, considering the speed, and I have secured no information which will change that testimony.

Q. Now just take it in the abstract: Does the passenger train vary that much?

A. No, the passenger train is fairly constant, that is, the same number of cars each day, although the per cent of rating may
1300 only be 25%. I don't know what they are. They have not been figured for the St. Louis & San Francisco on form 1121-A.

Q. The point I want to call your attention to is this: From your views of this matter, do you believe that the same fluctuations occur in the passenger service as those you have referred to in the freight service——

A. No, sir, the passenger service——

Q. I am referring to the weight behind the engine.

A. The number of cars behind a passenger engine is more constant than it is with freight, but whether the percentage of loss of potentiality is as great in passenger as in freight, or varies as much from day to day, I do not know, since I have no figures which show the gross ton miles of passenger trains.

I will add there, that if the per cent of rating hauled was the same right along for freight, and did not vary from day to day, from month to month and from train to train, and the per cent of rating of passengers handled each day was exactly the same, then, so far as the engine ton mile is concerned, its use would not burden—it would be more accurate than it is under the circumstances where engines handle different ratings from day to day, from division to division, and in direction.

Q. Are the same engines usually assigned to passenger service on the Frisco Railroad?

A. They assign certain engines to the passenger service and
1301 try to keep them in that service, but in accordance with the statement I saw in Mr. Rosing's office in Springfield, it shows a freight engine will make a certain amount of passenger mileage.

Q. That is negligible?

A. No, it is not negligible, but it is the result of usual operation.

Q. As a rule the same engines are assigned to passenger service?

A. They try to keep them assigned, but, of course, they are not successful in actually doing so.

Q. Do they usually take Pacific and Atlantic type passenger engines and haul freight trains with them?

A. I don't know what their practice is. I know that they have certain Pacific type engines run in the 1,000 class and try to keep them in passenger service as much as is practical in good railroading, although a lot of mileage is made by freight engines in passenger service.

Q. Let me have that time-table: I have before me the time-card of the Central Division. On page 9, under "Special Instructions," Paragraph No. 4, is the rule which you read a while ago, that the tonnage of a train will be permitted to vary ten tons under, or fifteen tons over the published rating. And in Rule 5, it says, that under exceptional bad weather or rail conditions, when the assistant

1302 superintendent's office cannot be reached, 10% less than the published rating can be handled, and the circumstances reported to the Assistant Superintendent:

Do you regard fluctuations within that rule as a departure from the rating contained in the time-card, and as affecting the value of that rating?

A. That is one fluctuation, yes, sir.

Q. Do you regard that fluctuation as destructive of the principle?

A. Yes, sir, absolutely that is one of them, and the other one is because that ten tons under or fifteen tons over, and that ten per cent proposition of that represents only a part of it. The business is not there to move between these points. That is the reason. Instead of handling 90%—counting 10% off—they handle 44, 55, 60 and so on. The business is not there. The engine has not got it to pull.

Q. Notwithstanding that the rating relates to normal conditions, you think those rules are not made on that ground but because the business may or may not be there to handle?

A. The business may not be there to handle in these particular test months, or in 1907.

Q. And you think Rule 5 is based on the same reason?

A. Bad weather or rail conditions might come even if the business was there, but the difference between the actual performance and the rating—excepting, of course, the bad weather or rail condition, and engine failures, is due to the business not being there.

1303 Q. Don't you know as a matter of fact that railroad operating officers do not expect or require those who operate their trains to realize the full potentiality of the engine according to their rating shown in the time-card, without respect to the viscissitudes of the weather conditions, and expedited service and other incidents that affect the ability of the engines to perform their potentiality, and is not that what you meant when you said, on page 1129 of the record, in discussing the engine ton mile:

"It is a very variable factor, for the simple reason that in practical railroading the business has to be moved,"

and again at page 1099, when you said:

"An attempt is made to load trains as nearly as can be under the circumstances."

Did you not make those statements with reference to the fact that these fluctuations necessarily occur growing out of changes in conditions that cannot be foreseen?

A. I knew that these fluctuations occurred, but it was testified to by the witness Hamilton that a man that did not put the full rating on an engine would not stay there very long.

Q. Did Mr. Hamilton say full time-card rating?

A. The full rating, as I understood it. There is only one rating for engines that I know of in this work. The rating is placed in the

time-table and it was expected that that rating would be handled if the business was there to move.

Q. What would be the rating of the engine after the appli-
1304 cation of the reduction that is allowed under the instruction, the 10% that is allowed under the rule?

A. Well, if 10% would be taken off it would be 10% off the rating.

Q. What would be the rating for that trip, then?

A. On a particular train?

Q. Yes.

A. The rating would be 10% less than it is shown here in the time-table, but that would not affect the actual performance. The performance of the engine would still be actual, and the weight of the engine would still be actual. That is just what I am driving at when I say that the engine ton mile does not represent the train behind it.

Q. Mr. Mayer, is it not true that where railroads have locomotives of different sizes and capacity they are assigned to the territory in which the traffic moves for which they are best fitted? In other words, the heavier engines on the Frisco Railroad are assigned to the territory where the heaviest density of traffic occurs with the greatest frequency, and where the traffic is normally moving in light quantities the lighter engines are practically permanently assigned: Is not that true?

A. Just a moment. Let me see your Exhibit No. 1, will you?

Q. I am asking you this as a matter of your own knowledge as to the rule that generally applies on railroads, and if you know,
1305 the rule that applies on the Frisco. I don't think there is anything in the formula that has any bearing on it.

A. That is a general proposition, but on page 9-A of Exhibit No. 1, it reads as follows:

"The locomotives of the St. Louis and San Francisco Railroad are not permanently assigned to operating divisions, but are quite frequently moved from division to division and from state to state, nor are they all assigned permanently to any one class of service, although the railroad has a great many engines which are definitely so assigned."

It is a fact that they try to do that, but according to Exhibit No. 1 it was not possible during the two test months.

Q. Do you know why they were moved from territory to territory?

A. No, sir, I do not know except what is stated in the formula.

Q. Do you not know that the St. Louis & San Francisco Railroad has an official known as Superintendent of Locomotive Performance, the greater part of whose duty consists of keeping the locomotives assigned to the territory where they best fit the traffic and operating conditions?

A. I don't know what his duties are, but I know that that work is taken care of on a railroad.

Q. Don't you know that there is an official who is chargeable with that duty?

A. I don't know what this particular one is.

1306 Q. But you know that that is done?

A. They attempt to do that, but as shown in Exhibit No. 1 it is not always possible to do that.

Q. Does Exhibit No. 1 show those engines were moved?

A. It don't show why, but it says they are.

Q. May it not have been that it was for the purpose of assigning them to the territory they were best fitted to perform in?

A. That may be one reason, but, of course, if an engine was kept up to 100% efficiency, as testified to,—they don't move them for the sake of moving them.

Q. Is the traffic constant on all parts of a railroad?

A. I don't think it is, although I think it was testified that it was fairly constant, or fairly well balanced.

Q. To get back to my question, don't you know, as a matter of fact, that generally in railroad operation, locomotives are assigned to the territory to which they are best adapted, in view of the traffic conditions and all conditions that enter into economical operation?

A. In attempting to reach the ideal, of course, that is a factor.

Q. I am not talking about the ideal, but is not that a practice——

A. No, sir, it is not a practice, nor has it been. In other words, on account of the condition of traffic and the poor balance of it, it is impossible for any man to keep an engine working to 100%
1307 of its efficiency and these reports so show it, although an attempt is made to try to do that.

Q. I am not asking you that, or asking you if engines are kept up to 100%, or kept in the territory where they can realize 100% of their efficiency, but simply if in the assignment of engines they are not sent into the territory and on the parts of the line to which they are best adapted with reference to their construction.

A. As a general proposition, yes, but specifically, no, excepting in cases of helper engines and such as that.

Q. You know the district in the region of Boston Mountain——

A. I have heard it testified to in this case.

Q. Have you ever ridden over it?

A. No, sir, I have not.

Q. You know there are high grades there?

A. That has been testified to, yes, sir.

Q. Do they use the same kind of engines there as they use in the river valley?

A. On passenger trains I suppose they are about the same.

Q. I mean on freight trains.

A. But a better example would be where Malays are used. Perhaps where the grades are heavier. They attempt to do that as much as possible.

Q. Do you know that to be fact in regard to passenger
1308 engines?

A. I examined a few C. T. 64's of passenger consist.

Q. Did you not hear Mr. Hamilton testify on that subject?

A. I don't know whether I did or not.

Q. Did you not hear him testify that they had the largest passenger engines on the mountains and the smallest in the valleys?

A. I know that condition exists to some extent. I don't remember his testimony, but I know that they attempt to put an engine where they get the most efficiency out of it. But that is all dependent upon what a man's idea of efficiency is, and it does not show up very well for freight on these statements. So far as passenger is concerned there is nothing here to show what per cent of the potentiality is received.

Q. In dividing the use of the track between the two classes of traffic, that is, freight and passenger, does not the engine ton mile represent the use made by each class of service more nearly than any other factor that can be used?

A. No, sir, it does not.

Q. What does?

A. My opinion would be, so far as line expense is concerned, after all the actual charges are taken out, that the gross ton mile would more nearly represent it, such as is used in this case, between through and local trains, but not between freight and passenger.

1309 Q. You say through and local freight trains?

A. That is what I said, yes. I said the gross ton miles was used between through and local freight, but not between passenger and freight. If the engine ton mile is right in one place it ought to be right in another.

Q. Do freight and passenger trains run at the same speed?

A. Usually, no, but there is a compensating element in passenger that makes up for that.

Q. What is that?

A. Well, the springs, for instance.

Q. What are you talking about now, wear and tear to the track?

A. Yes, sir. When it comes down to dividing the elemental damage the engine ton mile is not any nearer to being correct than the gross ton mile, and neither one of them are right.

Q. I was asking about——

A. There are two kinds of use. There is a use that the elements wear out the track. Neither the gross ton mile or engine ton mile are proper for that.

Q. The elements do not use the track, do they?

A. The elements are responsible for the damage—from 75 to 90 per cent of the track.

Q. That is regardless of the use that is made of it, is it not?

1310 A. Absolutely. That is why the engine ton mile is incorrect, because the engine ton mile only divides from about 10 to 15 per cent of the damage. It is like turning a pyramid upside down to divide on the engine ton mile, even if the engine ton mile was within 50% of being correct.

Q. Assuming it is true that 90% of the damage grows out of the elements and natural causes: Does that prevent the ascertainment, and effort to ascertain, the extent to which that track is used in the service and in discharging the various operations incident to the service in transporting freight?

A. Well, of course, nothing can prevent any one from applying a factor like that, but it prevents an actual division. The result of dividing the 90% of expense by 10% is naturally wrong.

Q. Assuming that I want to assign the expense of operation with reference to the use that is made of the facilities: Is there any reason why I should not assign that part of the expense of maintaining the track which is attributable to wear and tear, with reference to the use that is made of the track by the various classes of service?

A. That is a way of dividing. You might as well use the tractive basis, if you want, and that is almost as accurate a basis of division.

Q. You differ with the Supreme Court on that subject, do
1311 you, with regard to the division of that cost in accordance with the use that is made of it in transportation?

A. The use that is made of it in transportation, in this formula, is the engine ton mile. That will divide but one-tenth of the expense. There is 90% left. You are dividing 90% of it on an arbitrary, and what I have tried to show, an erroneous factor.

Q. Oh, no, I am using the entire track——

A. I know you are.

Q. I am not having an argument with you, I am asking you a question. The railroad company uses the entire track and that track has to be maintained; it has to be maintained for the purpose of being used in transporting passengers or freight. That track is perishable; it has to be kept up. Some of the causes of its decay are natural; some grow out of the use to which it is put, wear and tear, but it is true, nevertheless, that the track must be kept up and that the cost must be assigned. The whole of that cost, if it is necessary, and if it is required under the rulings of the Court to divide the cost with reference to the use that is made of the property, then must you not divide all of the expenses incurred, whether they grow out of wear and tear, or whether they grow out of elemental destruction, by the use that is made of it?

A. The use that is made of it, as shown in this formula and with which I do not agree, is the engine ton mile. That will
1312 divide up 10% of this expense, 10 to 25 per cent of this expense.

Q. I am not asking that——

A. It is true that this track has to be maintained so trains will move over it, but in using a factor which represents only 10% of the use, by dividing 100% of the cost, 90% of which is due to the elements, you have confused the method of division. It would be better to apply a factor which actually represented, or which more nearly represented, the traffic than the engine ton mile, and yet that would be wrong.

Q. Let me ask you——

A. —because there is not any way to make a fair division of this 90% as shown in this formula.

Q. Exercise your imagination far enough to assume for the moment that the engine ton mile does in point of fact represent and reflect the use that is made of the property. If that is true, then

why is it not proper to divide all the expense that is incurred in maintaining it on that basis?

A. With the assumption that the engine ton mile does represent the use?

Q. Yes.

A. Which it does not.

Q. I did not ask you whether it does or not.

A. Yet you are dividing the 90% which is not affected by traffic, by the part which is affected by traffic, which is unreasonable.

1313 Q. If 90% is affected by the elements and not by the traffic, do you know of any unit that will represent all the damage done to it?

A. Well, I half-way agree with the statement of the Engineering Committee, in which they say that the gross ton mile is a better unit than any other for the division between freight and passenger, but that unit does not represent the 90%, because 90% of it would require repairs if there is any traffic or not.

Q. What Engineering Committee do you refer to?

A. The American Railway Engineering Association.

Q. Where did you find that statement?

A. In the American Railway Engineering Association, Volume 14, 1913 reports, page 1135, the following is found:

"Summarizing, in the absence of precise data, and taking into account the complexity of the problem, is it not fair to say that under average conditions a gross ton of passenger train creates the same destructive effect on track and structures as a gross weight ton of freight train; and that an attempt to assign constructive tonnage to portions of the rolling load as the measure of their assumed excess wear and tear on track and structures, will result either in complications and contradictions, or in so many variations in the formula as to make the exceptions prove the rule."

Q. What page are you reading from?

A. That was just an extract from it.

Q. Is that paged, that paper you have in your hand?

A. No. It is not a report of the Committee——

Q. What is that?

1314 A. It is a discussion on the separation of operating expenses between freight and passenger, as issued by the Interstate Commerce Commission. Then they also say——

Q. Is it not paged?

A. On page 14, the following is said about the gross ton mile. It is taken from the American Railway Engineering Association, Volume 14, 1913 report, page 583:

"Criticism may be made of adopting a traffic unit that involves the estimating of passenger train tonnage. Nothing can be done of value if the work of the Committee is to be based in the terms of statistics as kept at the present time. Net ton miles, freight and passenger train car miles is kept; also road engine mileage separated between freight and passenger service. The weights of locomotives

are a matter of record. The estimating covers the assumption of an average weight for empty freight cars, which at present is about 18 tons, and an average weight per car and load of passenger train cars. At the present time 44 tons per passenger train car of the average train will not lead to great error, and the average passenger train in the United States is approximately 5.3 cars per train. This last figure is not necessary for the use where passenger train car mileage is available."

I think that gross ton miles is a better method of dividing between freight and passenger line maintenance of way than any other basis yet devised. At the same time, the gross ton mile does not take into consideration the 90% done by the elements. There must be some different formula or method of dividing the elemental damage than that caused by use.

Q. How would you divide it if you do not divide it by the unit of use?

A. I don't know.

1315 Q. Who prepared this paper you have read from?

A. That is sent out by the Interstate Commerce Commission. It is a study for the division between freight and passenger. It was sent to me by the statistician of the Interstate Commerce Commission, and issued by them. The excerpts which I have read are from the American Railway Engineering Association, and the pages are quoted——

Q. The heading of this paper is this:

"According to an opinion recently issued by the Interstate Commerce Commission (30 I. C. C. 676) all carriers of Class 1, that is those having operating revenues in excess of $1,000,000, will, as soon as practicable, be required to separate all operating expenses between freight and passenger (and allied) services. The following is an attempt to outline a method of separation for preliminary discussion before a revised circular is prepared for general conference and discussion."

Did you say the Commission issued this?

A. Yes, it was issued, just the same as you read there.

Q. Is not this the discussion of somebody on that subject?

A. What I read to you, Judge Moore, was an excerpt from the Engineering Association report. I could have read that from the original if I had that.

Q. I ask you if the Commission had that paper prepared, or is it a paper written by someone?

A. Prepared by someone on the Interstate Commerce Commission and sent out.

Q. Do you state that it is an official document sent out by the Commission?

1316 A. I don't know whether it would make it official, excepting it was issued by the Interstate Commerce Commission and contains these excerpts from the American Railway Engineering Association reports which I have read to you. I did not read the rest of the data compared therein.

Q. Do you know who prepared it?

A. No; it was sent to me by the Interstate Commerce Commission.
Q. Who sent it to you?
A. The statistician.
Q. What is his name.
A Mr. Meyers. However, he did not prepare the excerpts, he merely took them from the report of the Committee.
Q. Has it the government printing office stamp on it?
A. I don't know. It would not make any difference——
Q. I did not ask you whether it made any difference, I just asked you if it has the government printing office stamp on it. You can tell by looking at it, can you not?
A. Yes, sir.
Q. Wait a moment and I will hand it to you.
A. Whether it had the Government Printing Office stamp on it would not affect the Committee reports of the American Railway Engineering——
Q. Engineering Association?

Mr. Bledsoe: Those reports from which you are reading were not adopted by the Association. Those things do a good deal
1317 of harm when they are put in in that form without——

Mr. Hill: His statement was that he half way agreed with the Committee of the Association. Mr. Moore asked for that and he gave that as part of the report——

Mr. Bledsoe: It was read all the way through as part of the report of the Commission.

Mr. Moore:

Q. Do not all documents that are sent out by the Interstate Commerce Commission bear the Government Printing Office stamp?
A. I presume they do, yes, sir.
Q. Look at that paper that you read from and see if that bears it (handing paper to witness).
A. I do not know whether all documents sent out bear the stamp or not. The excerpts which I read were from a book that does not bear the Government Printing Office stamp, but is a quotation from the American Railway Engineering Association report, which I read.
Q. Was that adopted by the American Railway Engineering Association?
A. I don't know. It is a report of the engineers, that is all. I said I agreed partially with what their report said.
Q. Mr. Mayer, you have been connected with the State Railway Commission, don't you know that it is a well known fact that the Interstate Commerce Commission does put the Government
1318 Printing Office stamp on every document that is sent out?

A. No, sir, I don't know that.
Q. You don't know that?
A. I merely quoted the report of the engineers. I did not make any difference what report it was in, I took the whole thing.
Q. Do you know what engineers that report was signed by?
A. No, sir; just a quotation from the body, that is all.

Q. You really do not know whether it was ever acted upon or adopted, or anything about it, except that you found what you call an excerpt——

A. What I stated, what I testified to, yes.

Q. What basis would you use for dividing between passenger and freight line maintenance expense?

A. I did not get up the formula, but if I had gotten it up I believe I would have divided about 10% of it on gross ton miles, used different bases, and permitted the Court to choose the one that in his mind applied most correctly to division, setting forth that no factor actually divided the 90%.

Q. What part of the 10% which you would divide on——

A. That is the use part. The elemental part is the part that I would divide on different bases and submit to the Court, if I were making the formula.

Q. So far as the use of it by the railroad is concerned you divide between freight and passenger on the gross ton mile?

1319 A. For the 10%, yes, sir.

Q. How do you arrive at the gross ton mile of passenger trains?

A. In this formula, page 28-A, they use 3,500 pounds for the contents of passenger cars. It reads as follows:

"In the case of mixed trains the gross ton miles consisted of the same component parts as described for local and through freight trains, the weight of the passenger car or cars and their contents on basis of an estimate of 3,500 pounds for the contents of each car, being also included."

Q. Charges passenger cars and mixed trains?

A. Yes, sir.

Q. Would you use that?

A. I would use that plus the weight of the car, yes, sir.

Q. You would use that in dividing between regular passenger trains in determining the gross ton miles——

A. Passenger trains as one factor, yes. That is an estimate, but it has been used in this case and it is fairly representative.

Q. Tell what basis you would use for the 90%.

A. I think I would use the gross ton mile.

Q. Why?

A. Well, in my opinion, it more nearly represents the use. At the same time, I would divide the 90% if I were making up such an exhibit, and I would state what it was: That it was not an actual division.

Q. I thought you said you could not divide that elemental cost by——

1320 A. I said I would use different bases.

Q. What are those different bases?

A. I think the gross ton mile would represent my first choice. Then the car mile.

Q. What is your next choice?

A. I think that would get down about as far as I would take it.

Q. That is as far as you would go?

A. But I would present this to the Court with the idea that it was not an actual division, that this 90% would go on in spite of all traffic.

Q. You put it up to the Court to make a division?

A. Yes, because I would not know any method to make it.

Q. How would you determine whether you were making or losing on that——

A. I don't understand that the engine ton mile was ever used in regulating the efficiency and for any other purpose, excepting in this trial period, November and December.

Q. You stated a moment ago that you could not use the engine ton mile to divide the damage which is inflicted by the elements because it does not represent it at all, it is something else; even assuming that the engine ton miles would be a proper factor to divide that part of the wear and tear which was caused by the use: Now you say you would divide that 10% by the gross ton mile, and that you would go further and divide the elemental damage by the gross ton
1321 mile: Why, if the gross ton mile is a suitable factor for dividing the elemental damage in the case you use it for, the wear and tear, would not the engine ton mile be a proper factor, if it is proper to use that with reference to the damage done by wear and tear?

A. Taking all those ifs into consideration, there is still——

Q. No, there is no "if" about it. I want to know why if you will extend the gross ton mile to the elemental damage in case you use it to divide the wear and tear, you would not do the same thing with reference to the engine ton miles if you use that to divide wear and tear damage?

A. Because I have already shown here that the engine ton mile does not represent the train behind it, and that the gross ton mile takes that element into consideration, it is more nearly right.

Q. You base your statement upon the ground that if the damage was done not by use but by natural causes other than use?

A. 90% of it.

Q. And that is the reason you said you would not apply the engine ton mile: Now, I say, if that is true there, why is it not true in regard to the gross ton mile?

A. Because the engine ton mile does not as nearly approach a division as the gross ton mile, but neither of them approach
1322 an accurate division. However, the gross ton mile is more nearly representative than the engine ton mile.

Q. So it seems your idea is that the gross ton miles more nearly represent the use, and, therefore, you would apply that to the entire matter, rather than the engine ton mile?

A. I said I would apply the gross ton mile to 10% and then make a separate application of it to 90%. I would then call attention to the fact that it was not accurate, but it was more nearly accurate than the engine ton mile.

Q. Will you read page 4 of the paper that you read extracts from a while ago, paragraph No. 3, relating to the weather stress ex-

pense and other expenses independent of the traffic wear and tear, into the record?

Mr. Bledsoe: It is divided between the passenger and freight.

Mr. Hill: Is it the balance of the engineers' report?

Mr. Bledsoe: He says it is the Interstate Commerce Commission's report.

The Witness: This paragraph 3 is not an excerpt from the American Railway Engineering Association report.

Mr. Bledsoe: No; it is the report you have been reading from.

Mr. Moore:

Q. Read that into the record as part of the report you have been reading from.

A. Yes, but in so doing I have not agreed that it was
1323 right, nor did I say that it was, and I know that it is not the opinion of the American Railway Engineering Association.

Q. Will you read it into the record?

A. Yes, sir. The study further shows on page 4, paragraph 3: "Turning to the weather stress expense, or other expense independent of the traffic wear and tear: This must be distributed on some basis that measures use of track. If passenger trains weighed no more than so much air and hence caused no damage to track whatever, they should, nevertheless, pay a toll for the use of track, because while on the track they monopolize it for a distance to the front and rear and prevent the use of that track by additional freight trains, if the point of congestion has been reached. Whether the train is long or short, heavy or light, it must have exclusive use of the track for a time. Hence, the train mile rather than the ton mile or car mile is the best measure of track use.

Formerly, gross earnings were frequently used to divide weather stress expense. Happily the Supreme Court has removed that illogical measure from the field of discussion."

What I have just read is not a discussion of the report of the American Railway Engineering Association, but is the conclusion of the statistician of the Interstate Commerce Commission, or whoever compiled the book.

Q. Is it not an extract from the report of the Interstate Commerce Commission which you say was sent out to you by the statistician?

A. It is a portion of it, yes, but I don't feel he is as qualified to make a statement as the American Railway Engineering Association would be.

1324 Q. But you don't know whether the American Railway Engineering Association ever adopted that report which you say was made to it, do you?

A. I don't know whether they did or not, but that would not affect my belief that they had arrived at what, in my opinion, was a more correct method of division than any other. The statistician of the Commission would not be as competent to speak as the engineers.

At this point adjournment was had until 8 o'clock on Monday, November 9, 1914.

1325 November 9, 1914.

After adjournment the following proceedings were had at 8 o'clock P. M.:

Cross-examination of Mr. Mayer resumed.

By Mr. Moore:

Q. Does the gross ton mile factor include the element of speed?

A. No, sir, the gross ton mile is merely the weight of the traffic.

Q. What factor do you understand the railroad used in dividing the maintenance of way line expense between freight and passenger for the 1907 period?

A. They did not divide it between freight and passenger in the four months of 1907—in the exhibits.

Q. You stated in answer to a question by Judge Hill, on pages 1131-2 of the record:

"Since the percentage of intrastate freight on local trains is greater than the percentage of intrastate on through trains, the result is that the intrastate gets the burden of carrying a larger part of the empty car movement."

How did you get at these per cents?

A. Why, the exhibits show, and it has been testified here, the percentage of business carried on through and local trains.

Q. Have you Exhibit 6 there?

A. No, sir, I have not.

Q. Here is a copy of it. Look at page 1 of Exhibit 6 filed by the Railroad Company in this case, near the bottom of the
1326 page and tell me how many ton miles of intrastate were carried on the through trains?

A. In November and December, 1913, the net ton miles of intrastate freight carried on through freight trains—no, of the total carried on through freight trains, 1.27%.

Q. What per cent is that of the total intrastate ton miles?

A. That are carried on both through and local trains?

Q. Just read the figures for the ton miles. You have them there before you.

A. Revenue freight carried on through trains, intrastate 1.27%; and interstate 1.93%.

Q. How many ton miles of intrastate freight were carried on through trains?

A. On through trains intrastate freight 472,506.

Q. How many ton miles of intrastate freight were carried on local and mixed trains?

A. Net ton miles of revenue freight on local or mixed trains, as shown by this exhibit, intrastate, 1,343,339.

Q. What percentage of the intrastate ton miles was carried on the local trains?

A. (After figuring:) Well, approximately 25%.

Q. Isn't it 74%?

A. No, sir.

Q. (Previous question read to the witness.)

A. 75% on local trains and 25% on through trains.

1327 Q. Take your exhibit CC and tell me what per cent of the total empty car miles that were carried on all trains was carried on the local trains?

A. Of the empty cars carried on all trains——

Q. What percentage of the empty car mileage carried on all trains was carried on the local trains?

A. There were far less empty car miles carried on the local trains than on the through trains——

Q. You are not answering my question. Figure it out and tell me the per cent.

A. For the month of November, 1913, on the Willow Springs Subdivision, empty car miles eastbound on the through trains——

Q. Can't you give it to me in figures? Just take those figures that are worked up on the sheet before you and see if they are not correct.

A. (After checking figures:) Assuming the figures on the statement to be correct, of all the empty car miles on all trains, the through trains carried 83.8% and the local train 16.2%. But my statement previously was——

Q. I didn't ask you what your statement previously was.

A. —that on account of the proportion of intrastate freight ton miles on local trains being greater than on through trains, that the intrastate traffic on the local trains bears more than its proportion of empty car miles; because the proportion of intrastate to interstate on through trains was as 1.27 to 98.3 bears to local trains

1328 14.41 to 85.59.

The reason why there are more local train empty car mileage shown on through trains is that there were so many more through train miles run than there were local train car miles run. In other words, in November, 1913, the through train miles on the Willow Springs Subdivision was 18,000 compared to 3,000 local——

Q. I don't want to go into those details now. You may go into those later if you want to.

Q. What is the total effect on intrastate traffic?

A. The effect is that when you apportion empty car miles on the local trains to——

Q. I said the total intrastate traffic.

A. That the intrastate bears more than its proportion of empty car miles.

Q. Do those figures you have quoted in the record show that?

A. Yes, sir, they do, because the proportion of intrastate freight ton miles on local trains is greater than the proportion of intrastate freight on through trains.

Analysis of Exhibit CC-1 shows that the through trains make about six times the mileage that the local trains make. And also, since there is more train mileage, of course there are more car miles. There is about 83% of the car miles on through trains, but through trains make about 90% of the freight train miles.

1329 Q. Mr. Mayer, having in mind my question as to what burden of empty car haul attaches to the total intrastate

freight traffic, do you, as a qualified statistician, say that 75% of the total intrastate traffic is upon the train that hauls only 16% of the empty car miles, that the intrastate is charged with a larger proportion of the empty car haul than the interstate—taking it simply as a mathematical problem?

A. My answer is that about 90% of the train miles are through train miles and that about 83% of the empty car miles are handled on the through trains. But of the empty car miles handled on the local trains, 10% of the train mileage and approximately 17% of the empty car miles are handled. And in that 10% of the train miles 14% of the business done, and the resulting computation, divides the empty car mileage on the rating of the train—14% of the business done is intrastate. Therefore, intrastate bears on the local trains 14% of the empty car movement, which is 17% of the empty car miles.

Q. What does it bear on the through train?

A. On the through trains intrastate bears 1.27% of the empty car miles, whereas interstate bears 98.73%.

If we were to apportion each one actually—not actually, but more reasonably, it would be necessary that the through and local trains, according to this formula, be composed of the same relative proportion of state and interstate freight; but such is not the case.

1330 In dealing with the 83% of the car miles on through trains and the 16% on the local trains, that comprises practically all of the through train road mileage, or the road mileage in Arkansas where through trains are operated; whereas, in order that that 83% and 16.2%, if it were to be correct, would have to reflect all of the branch lines in Arkansas as well.

Q. You left those branch lines out of your Exhibit CC, didn't you?

A. Yes, sir, and in applying Exhibit CC, the reason they were left out was because the data for the branch lines was not obtainable whereas the figures for the 1.27 and 98.3 handled on through trains; and the 14.41 and 85.59% on local trains, includes all of the business handled within the state of Arkansas, to which no reference was made on Exhibit CC.

Q. Mr. Mayer, get your 1190 report on which you made up your Exhibit CC.

A. I have it here.

Q. You made the statement that you could not get the data for the branch lines, didn't you?

A. Yes, sir, for the State of Arkansas.

Q. I mean, for the local trains on branch lines. Look at that 1190 report and see if the branch lines on each division are not there. Look at the bottom of each group and you will find them.

1331 Now, I want you to answer that question, not from this time-card or any other paper, but from that 1190 report from which you built up your CC exhibit.

A. I will have to answer your questions from the fact. I cannot answer them any other way.

Q. I asked you if they did not appear on that sheet 1190?

A. Yes, sir. But the trouble with the branch line shown on 1190 was that the through and local was not shown for the four months of 1907, and in making a comparative statement I had to use comparable trains and districts. And another thing, there is too much mileage of the branch lines outside of the state.

Q. Didn't you take in the whole Willow Springs Subdivision in making your Exhibit CC?

A. Yes, sir, I had to do that to make it comparable with the four months of 1907 which did not show a division between Willow Springs and the Memphis Subdivision of the Ozark Division.

Q. Why did you take that subdivision and leave out the others?

A. I had to take two periods that were comparable. That is, the four months of 1907 did not separate the Ozark Division between the Memphis and Willow Springs Subdivisions; and in order to make a statement of value and comparable it was necessary to add the Willow Springs to the Memphis Subdivision in the two

1332 months of 1913 test period.

Q. You just made a statement that there were no branch lines shown on the 1907 report. Please look at the sheet you have before you and which you had before you in making your exhibit and see if it is not shown on there?

A. The branch lines of the Ozark Division in December, 1907, are shown; but the proportions of road mileage on branch lines is too great outside of the state to make it of value. Whereas Exhibit 6 which shows the ton miles on through and local trains is expected to show only the through and local miles within the state of Arkansas.

Q. Look at the 1913 report and see if the Ozark Division branch lines are not there.

A. (After examining paper:) Yes, the branch lines of the Ozark Division are there.

Q. Couldn't you have made a comparable statement on the branch lines, if you had chosen to do so, and have put them in that exhibit?

A. I could have added them, and also added all other divisions shown on the 1190 or the 1121-A reports.

Q. Are there any through trains on those branch lines?

A. They make no separation of it in November or December, 1913, but there may be. I presume they are negligible.

Q. Just look at Exhibit 53, which is a map showing branch lines in Arkansas, and state if there is a branch line there that has sufficient mileage to justify running a through train upon it?

1333 A. The River and Cape Division.

Q. Is that division in your Exhibit CC?

A. No, sir, the River and Cape Division is not. You mean with reference to Exhibit CC?

Q. Yes.

A. I don't believe there is. On Mr. Hamilton's statement, I will

say that there are no through trains operated on the branch lines of the Ozark and Central Divisions.

If there are no through trains operated on these branches, and they are all locals, the proportion as shown here of intrastate freight is greater to all the freight handled on the locals than on the through, then that substantiates my statement previously made.

Q. How do you figure that out, Mr. Mayer?

A. Because all of the mileage made on these branch lines is local trains and the percentage of intrastate freight to the total is greater on the local trains than it is on the through trains.

I don't know just how many empty car miles were handled on these branches, but if it follows the main line it is clear to me that on the branch lines the same percentage of intrastate and interstate being handled, as is shown here on this Exhibit 6, then the intrastate must bear the same proportion of empty car movement.

Of course, on branch lines the interstate loading may be
1334 even greater for local trains than is shown by aggregating all the business in the state, as shown in Exhibit 6.

Q. That is something of which you have no knowledge isn't it?

A. Yes, but that would further aggravate it if that is the fact.

Q. On pages 1133 to 1136 of your testimony in chief you criticised the assignment of line value to state and interstate on the basis of transportation expenses. Do you know Henry Wilmering?

A. Yes, sir.

Q. Was he connected with the Oklahoma Corporation Commission?

A. At one time, yes.

Q. What position did he hold there?

A. Similar to the one I hold now.

Q. Did you succeed him?

A. Yes—there was one man in between.

Q. In the rate case of the Iron Mountain Railroad in Arkansas he testified on the subject to which I have called your attention in my question. He was asked the same question that you referred to in your criticism: He stated:

"In my judgment a division of property between state and interstate business should be on the ratio that the intrastate expense is to the total expense within the state."

Do you regard Mr. Wilmering as a competent man?

1335 A. In some respects, yes.

Q. But not in that respect in which he differs from you?

A. Let me see that.

(Witness reads testimony referred to.)

I can give you the reason why the transportation expenses will not answer—does not fill the bill. I don't believe Mr. Wilmering has gone into it quite as far as I have gone into it.

Q. Mr. Wilmering referred to all expenses, to a division of all the property, didn't he?

A. If he did refer to all of it it is still wrong.

Q. Again, on page 1119 in the Iron Mountain Case, Mr. Wilmering testified:

"In my judgment the cost would represent more correctly the use made of the property by the different classes of business."

A. I don't doubt he said that, but that wouldn't have any bearing on my decision whether it was right or wrong. There are such a lot of things I haven't approved.

Q. It is just the difference between the doctors?

A. No, sir.

Q. Didn't the Commission which you represent at this time also take the same position?

A. I don't know that they did. I don't know anything about that. I wasn't there. But I still say that the expense basis is wrong.

1336 Q. Did you ever hear of the Commission doing that?

A. I read it in that record.

Q. I know that, but did you never learn that that was the view of the Oklahoma Corporation Commission?

A. I know it was not the view of the Oklahoma Corporation Commission because they have never presented any approved basis for the division of the property.

Q. Didn't Mr. Wilmering examine you, as counsel, in the Oklahoma accounting order proceeding?

A. In the proposed accounting here, which we compiled as a basis of study, after trying to arrive at a division of cost Mr. Wilmering acted as counsel.

Q. Was it a moot court or actual litigation?

A. It was presumed to be actual court proceeding.

Q. It was a proceeding before the Oklahoma Corporation Commission to establish an accounting?

A. Yes, sir, it was the usual proceeding—at the same time Mr. Wilmering has never been recognized by me particularly as an authority on accounting.

Q. Didn't he prescribe the only accounting order under which the Oklahoma Corporation Commission is now acting?

A. No, sir, he did not. The only thing that was ever done was the matter of adapting the Interstate Commerce Commission classification, and no such thing as is here was ever under review.

Q. I am not speaking about the particular thing we have
1337 here under review.

A. My answer is, no.

Q. He represented the Oklahoma Corporation Commission, didn't he, as its auditor and its representative in regard to these matters which you now represent?

A. At one time he did. But he did not prescribe any system of accounting.

Q. The Commission seems to have had a better opinion of his ability than you have.

A. I don't know about that, but I know he is not considered an authority on accounting.

Mr. Bledsoe:

Q. Mr. Mayer, I will ask you if Mr. Wilmering did not prepare for the Corporation Commission of Oklahoma and submit to the Commission a proposed order, which resulted in Order 201, prescribing the system of accounts to be kept by railroads in the state of Oklahoma, and the form of report to be made by such companies to the Oklahoma Corporation Commission?

A. Mr. Wilmering assisted in getting up a proposed order, which adopted the Interstate Commerce Commission classification in its entirety, together with such amendments and changes as might be made from time to time, which was finally issued by the Commission and known as Order 201.

Q. That was promulgated while Mr. Wilmering was auditor, and before you had anything to do with the keeping of the books of the Commission?

1338 A. Yes, sir, that Order 201 is dated prior to my association with the Commission.

Q. And it is the only accounting order under which carriers now do report to the Commission their revenues and expenses, isn't it?

A. In total, yes. This order, which adopts the Interstate Commerce Commission classification, is the order under which the carriers are now reporting, although additional reports are, of course, required.

Q. That order requires the report of state revenues and state expenses; state ton miles and state passenger miles; cost of operating passenger trains and cost of operating freight trains; all in the state of Oklahoma.

A. It prescribes that the carriers may elect their own formula of apportionment; and most of them use the revenue basis yet, because they claim no other basis is practicable. And they report the revenues, assigning on any basis they may elect, and furnish statistics.

Q. The expenses, ton miles and passenger miles, operating expenses per freight train and per passenger train?

A. They do not report to the Commission on that feature. All they report is that they assign the expenses to the state and divide them between state and interstate on the revenue basis under acquiescence granted them since they claim that any other basis is impracticable at this time.

Q. You mean to say they do not report the average cost
1339 of operation of freight trains per mile of line and of passenger trains per mile of line?

A. No, sir, they do not report that. The only figures like that they do report is taking the total mileage, freight, passenger, and mixed trains, and dividing them through the total mileage expenses they assign.

Q. Don't they also report the total of freight classification, in tons and miles?

A. Yes, sir, they do report that. That has been done since Mr. Wilmering left the Commission.

Mr. Moore:

Q. So Mr. Wilmering was a factor in discussing questions of that kind before the Commission, that we are discussing now?

A. Not with the Oklahoma Corporation Commission, because we had no such accounting system in view.

Q. In discussing the one established?

A. We didn't establish any. We merely adopted the Interstate Commerce Commission classification.

Q. I want to call your attention to some of Mr. Wilmering's testimony: In cross-examination on page 1119 of the printed record in the Iron Mountain Case. He was asked this question:

"I want to call your attention now to some of these matters. I understood in your examination in chief that the value of the property of a railroad should be divided on the ratio of expenses.

A. On the ratio of the cost of doing business.

Q. On what theory, on what ground, do you base that view?

1340 A. On many.

Q. Will you state them please.

A. It is the best bases and the most equitable bases that I know of, and the revenue basis which has been submitted by some accounting officials, is erroneous, and the cost of doing business ought to be and is, in my judgment, the best basis. For the reason that it is more rigid, not elastic like the revenue basis; the revenue basis would probably cause the value of property to be changed by the ups and downs or the increase or decrease of rates, and Judge Van Devanter used it in his opinion written with reference to the temporary injunction granted in this case.

Q. Any other reasons upon which you base that? What has been your observation of the method that obtains in the ascertaining of the value of other classes of property, other than railroad property?

A. We have had no occasion to make any division of the value of property within the confines of the state; we have attempted to get actual cost of property within the state, in order to get the value."

A. He is still referring to all the expenses.

Q. To all the property.

A. In this case we are using only the transportation expenses. I don't believe Mr. Wilmering made as deep an investigation into the facts as I have made in this case, and I don't believe he was referring to transportation expenses only. But whatever he referred to would not affect my opinion that the expense is a wrong basis; because the dollars spent in passenger, as I explained the other day, does not mean the same as the dollar spent in freight. And when you throw the average of opinions and estimates together with materials, supplies and labor into the expenses, and then try to make a division, it makes it more erroneous.

Q. Do you know Charles S. Ludlam?

1341 A. I met the gentleman.

Q. Do you know what his business is, and what his professional reputation is as a cost accountant?

A. Oh, I know something of him.

Q. State what you know about him.

A. He is with Haskins & Sells; and is a man of considerable experience in bookkeeping.

Q. You mean he is in the employ of Haskins & Sells?

A. I think he is.

Q. In a subordinate capacity?

A. I don't know. I don't know just what his position is.

Q. Don't you know he is the head of that firm?

A. I didn't know it.

Q. Didn't you know he was one of the heads of that firm?

A. I didn't know it, and I don't think he was at the time he gave that testimony in the Iron Mountain Case.

Q. I will read you what he says on that subject:

"I am a member of the firm of Haskins and Sells, Certified Public Accountants of the City of New York."

and it was recognized in that case that Mr. Ludlam was the head of that firm. That firm was employed by the state of Arkansas to prepare its defense to the Iron Mountain Case, wasn't it?

A. I think so, yes.

Q. Mr. Ludlam was called to testify in this case, and upon page 1317 of Volume 2 of the printed record in the Supreme Court of the United States, his judgment was asked in regard to this same subject-matter we are upon now—that is, a proper method of dividing property. He said:

1342

"In my judgment the cost would represent more correctly the use made of the property by the different classes of business."

A. He was discussing a cost method for dividing revenue, was he not? I think he was from my investigation of the record.

Q. He was giving his view as to the proper method of dividing——

A. Compared to the revenue basis the cost basis is much better. The revenue basis is nil, so a comparison of the cost basis with the revenue basis would not mean much for the cost basis.

Q. He was asked this question:

"I call your attention to the fact that in this case the railroad divided their property which is in the state of Arkansas between state traffic and interstate traffic in proportion to the gross earnings of each after setting aside the miscellaneous: I will ask your views of that division."

His answer was:

"I think that division is wrong on account of the fact that the gross earnings which fluctuate with every change in rate are not, in my opinion, a fair basis to divide the property. I think you have a more equitable division if you will apportion your property on the basis of cost. In my judgment, the cost would represent more correctly the use made of the property by the different classes of business."

That was his statement.

1343

A. Yes, and in what he is referring to there he says that cost is better than the revenue, and I agree with him. It is

better than the revenue, but it is not a good method. He did not say——

Q. Would you regard Mr. Ludlam's opinion as of any value on a subject of that kind?

A. I think as expressed right there it meets my approval entirely. It is better than the revenue basis.

Q. That is not the question I asked you, but independent of that, would you regard him as a man whose ability and experience would entitle his judgment to value on any question affecting cost accounting and the division of value with reference to that?

A. To some questions, yes, sir.

Q. I will ask you, then, further, upon a question involving proper bases upon which to divide the value of the property of a railroad, would you regard his opinion of any value in view of his experience and ability?

A. I would give it some weight; I would give it some weight in the direction in which he actually testified. Any basis is better than the revenue basis.

Q. Do you know Mr. T. F. Wharton, who was the manager in St. Louis for the Haskins & Sells firm of Certified Accountants?

A. No, sir, I never was acquainted with the gentleman.

Q. Did you ever hear of him?

1344 A. Since my connection with this case, yes, sir.

Q. You know, do you not, that he was in charge of the preparation of the State's case in the rate litigation of the Iron Mountain and Cotton Belt Railroad Cases, do you not?

A. He was, I think. I don't know, but if you say so I think I will agree with you that he was. That was before my connection with this case and I don't know very much about these old time ideas.

Q. When Mr. Wharton was asked his opinion upon that subject he stated as follows:

"My opinion is that the cost basis is the more correct basis for the division of property."

When he said "more correct basis" he was referring to the revenue basis?

A. That is what I thought. It is more correct than the revenue basis, but not much.

Q. "Owing to the fact that the cost, taking into consideration the elements of extra use of property of the extra property required, if any extra property is required in the service performed, it would be the best measure of the property required, that would take into consideration, then, all use, whether extra use or not?

A. It would take into consideration all of the use, the cost basis.

Q. Would it be subject to the fluctuations that the revenue would be?

A. No, sir, it would be subject to no fluctuations except the fluctuations of expense."

Do you regard Mr. Wharton's opinion on that subject as of any value?

1345 A. Yes, where he says it is more correct and more proper than the revenue basis I agree with him.

Q. What is your view as to the value of his opinion where he says it would be the best measure of the property required, and that it takes into consideration all the use of the property? What do you think of that expression?

A. If his word "best" there is comparative with the revenue basis, why, it is the same thing.

Q. "Best" is superlative. He first made the comparison and then he went on to state what he regarded as the best basis. In view of that statement——

A. Better than any other, you mean?

Q. Yes, better than any other. In view of that statement——

A. I don't believe he went into it as deeply as I have gone into it.

Q. You must think you are a pretty deep man, don't you, Mr. Mayer?

A. Yes, I do.

Q. In your opinion it does not matter whether anybody else agrees or disagrees with you about it. Your opinion for you is the correct one without regard to what anybody else says?

A. Until somebody else convinces me that the three or four reasons I gave the other day about the transportation expense are wrong, I will cling to that idea. None of these gentlemen
1346 made any reference to the particular reason that I gave why the transportation expenses alone were improper for the division of property.

Q. Do you think you are the only man that ever thought of it along the line that you thought of it?

A. I don't know what other people thought.

Q. Pursuing the subject further, you in your testimony treat the assignment of value as though it had been made on transportation expenses, not only between state and interstate, but between freight and passenger: Do you understand that the value of all property was divided on that basis in one lump?

A. All property?

Q. Yes.

A. No, sir, I don't understand that at all. It don't say so in this Exhibit No. 1.

Q. Look at Exhibit No. 18, please, and see what was done.

A. No. 18?

Q. Yes.

A. I am testifying from pages 38-A and 39-A, which show that not all the property was divided on the transportation expense. I have that exhibit.

Q. Have you Exhibit No. 18?

A. Yes, sir.

Q. What does it show in regard to that?

1347 A. Sir?

Q. Look at page one in regard to that.

A. That gives the classification of values as reported, and amount of expenses.

Q. Where does it show expenses? Just read the expense figures.

A. I mean it shows the values classified.

Q. In what way? Just state that, that is what I want you to state.

A. Between——

Q. Read the headings across the sheet.

A. The values shown here are freight terminal, passenger terminal, freight line, passenger line and terminal, freight and passenger terminal, freight and passenger line, freight and passenger line and terminal, and then the total.

Q. Now read the bottom.

A. It just gives the totals.

Q. What does it do with mail cranes?

A. It shows that in a lump sum there.

Q. Does it show the lump sum for all the rest, or does it separate it?

A. It is a separate item.

Q. What does it do with car repair tracks?

A. Car repair tracks, car repair buildings, and shop machinery and tools, are one item. I never did testify that all of this property was divided on the expense basis, because I knew it was not.

1348 But it is wrong even for what part of it it was used for.

Q. How does it show equipment was divided? Look at the last page of Exhibit No. 18.

A. Of course, all the passenger equipment was actual passenger and all freight was actual freight, as much as was possible for the equipment.

Q. How were locomotives divided?

A. It is shown here that a certain part of the locomotives, $818,000 freight, and $395,000, passenger,——

Q. How was it divided, on the cost of maintenance?

A. Between freight and passenger?

Q. You will find that on page 6 of that exhibit.

A. On page 6 of Exhibit No. 18 it shows the basis of dividing locomotive repairs, renewals and depreciation. This expense proposition was used for the——

Q. Wait a moment——

A. I want to finish that answer.

Q. I want you to answer the question by showing on what it is divided, whether it is not divided on the cost of maintenance?

A. Maintenance, but——

Q. Is that correct, that it is divided on the cost of maintenance?

A. That is the way the percents are arrived at; it is the same thing, yes. But this transportation expense proposition is

1349 used in accordance with page 38-A and 39-A of Exhibit No. 1, which shows that the,

"Original cost value of roadway and structures, as determined by, and under the direction of, the chief engineer of the St. Louis and San Francisco Railroad, has been apportioned, first, to the various classes of service, and subsequently to the various classes of traffic,

on the basis of the assignment of transportation expenses to each class of service and traffic, under the provisions of this formula, as modified, and as described and set forth in Exhibit- Nos. 2 to 17, inclusive.

The theory upon which results of the division of transportation expenses were used as a basis on which to divide the value of roadway and structures, is that the transportation expenses themselves have been divided in minute detail on the basis of the use made of such roadway and structures, and that, therefore, the apportionment of such expenses itself reflects the use made of the property.

From the value of roadway and structures divided on basis of transportation expenses, as set forth above, there has been excluded the value of all buildings and facilities (including shop machinery and tools) used in the repair of locomotives, cars and work equipment."

Q. Go on with the rest.

A. "The value of these buildings and facilities, machinery and tools, has been divided on basis of the assignment of the cost of repairs, renewals and depreciation of locomotives, cars and work equipment. The division of the values of locomotives, cars and work equipment, has been made as provided for in the formula."

Q. Is not that maintenance of equipment? Just look at the formula and see if that is not maintenance of equipment. I think you said a while ago that that was the case.

A. Yes, but what I was driving at was this transportation——

1350 Q. While you are on that read the last paragraph.

A. "No portion of the value of general offices, general stores or general shops (none such located in the state of Arkansas) has been included in the valuation of the property, nor has any allowance for working fund been included in such valuation."

What I was driving at was that these transportation expenses used as they were, as shown in the third paragraph on page 38-A, are wrong for that part that they were applied to, for the reasons given previously.

Q. Mr. Mayer, I wish you would state what your understanding is as to the——

A. Let me finish that statement. Only a part of the property of the carrier that was not divided on transportation expenses, as shown on Exhibit 1, page 38-A, was the value of all buildings and facilities, including shop machinery and tools used in the repair of locomotives, cars and work equipment. The rest of it was all divided on this transportation expense proposition.

Q. Is it not true that definite freight and passenger property was first set aside? Look at Exhibit No. 18 now for that purpose, on the first page. Look at the headings across there.

A. Yes, everything that could be assigned to freight and passenger I presume was so assigned, but that would not divide the common — upon which the transportation expenses were used as a method of division.

All that property between stations amounted to $17,416,-
1351 037, which this transportation expense was used as a method for dividing, whereas that assigned to freight or passenger was minor compared with the part that the arbitrary was used for.

Q. Did you not see in the record in Mr. Hamilton's testimony that he substituted the engine ton mile for transportation expense? and that it made no material difference?

A. I think that is in there, but then that would not make any difference, because the engine ton mile is wrong, too. That just substantiates the error that he made.

Q. Mr. Mayer, am I to understand that your condemnation of the transportation expense is based upon the idea of the illustration you made of the farmer who divided the value of his farm on the cost of transporting the cotton raised on one side and the cattle raised on the other side, to market?

A. That is a good example of it.

Q. That is the principle on which you condemn the transportation expense as a factor?

A. No, that is not the principle; that just shows up the fallacy.

Q. What does that illustrate?

A. That just illustrates the principle.

Q. If that is the principle that is the ground on which you object to it?

A. I showed you the ground on which I objected to it had
1352 no relation, and I gave you the example to show there was not any.

Q. In that connection I want to ask you this: Did you use the farm for the purpose of hauling the cotton and the cattle to market, or did you use it for the purpose of producing those commodities?

A. The farmer was supposed to use the farm for producing these articles, just the same as transportation expense is the ultimate goal, or desired end, in the railroad business. In other words, we can compare the maintenance of the railroad to the repairs of the building, and the maintenance of the equipment to the repairs of the farm machinery. The transportation business in a railroad is what they make money on, by the movement of commodities, of course, and in the farm the movement of these products to the market, under this formula, ought to be the expense of each, ought to divide the farm, but the fallacy of the theory, to my mind, is shown when you use a simple example like that.

Q. The idea of your illustration, then, is that the value of the farm should be divided upon the cost of producing the cotton and cattle, is that it?

A. No, that is not my idea.

Q. You think the value of the farm ought to be divided on the cost of transporting the cotton and the cattle to the market?

A. That is not my idea. I simply applied this principle
1353 of transportation to the farm to see how it would work, and it would not work reasonably. I have applied this theory to the value of the farm to see how it would work out.

When I said in my other answer, the goal of transportation, I

mean- to say the movement of commodities. That will correct that other statement.

Q. On pages 1145 and 1146 of your testimony in chief, you said that the division of part of yard expense assigned to line service is very unfair to the intrastate traffic and results in overburdening it, because the average freight haul in Arkansas is only 25 miles on intrastate traffic, while the division points are about 100 miles apart.

A. That is right. That is the reason it is unfair.

Q. I wish you would state, if you know, what the average haul of interstate freight in Arkansas is.

A. It is in one of these exhibits. I think it is about 85 miles.

Q. It is shown in one of these exhibits to be 75 miles, 74 and a fraction.

A. That is right.

Q. If that is true, would not your criticism, if there is anything in it, apply to both classes of freight?

A. No, sir, it would apply——

Q. You say neither one of them is the length of the average division?

A. But when you speak of interstate freight you are throw-
1354 ing trans-state in with it. That is a longer haul, and that naturally gets all these divisional handlings, and this 75 miles will get one of them, too.

Q. Is it not a fact that a large proportion of intrastate traffic originates at jobbing centers which are divisional points?

A. Some of it will originate there; I don't know what percentage.

Q. You claim to be a great railroad man and a great Corporation official, tell me your idea about that; if you have as strong ideas in connection with that as you have about the proper way of dividing property. You say——

A. These would not apply in the state of Oklahoma, but it might apply in Arkansas. It depends altogether on wh-re the divisional points are. A lot of traffic originates at these way stations, you know.

Q. Do you know where the terminals of local freight trains run on the Frisco in the state of Arkansas are located?

A. Yes, according to the time-card. On the Memphis Subdivision there is a terminal at Jonesboro. I don't imagine very much intrastate originates there compared with the interstate freight on those local trains.

Q. Don't you know it is about the third largest jobbing center in the state of Arkansas?

A. No, I did not know that.

Q. I am afraid you don't know enough to justify you in
1355 stating an opinion as strongly as you did. Go ahead, what are the others?

A. My idea was that other towns in Arkansas were considerably larger jobbing centers.

Q. What are the other terminal points?

Mr. Hill (to Mr. Moore): You say Jonesboro is the third largest jobbing center in Arkansas?

Mr. Moore: That is what I asked him. I asked him if he did not know it was. I am informed that it is.

Mr. Hill: In the state of Arkansas?

The Witness: Not in Arkansas.

Mr. Hamilton: No, it is possibly the fourth. It comes behind Pine Bluff. I forgot about Fort Smith, for which I apologize.

Mr. Hill: There is Little Rock, Pine Bluff, Texarkana——

Mr. Hamilton: Texarkana is half in Texas.

Mr. Hill: I would say that Newport and Helena would be larger.

Mr. Hamilton: No. I can have our industrial agent give you some figures on that if you want them.

Mr. Moore:

Q. Hoxie is another, is it not?

A. I don't know how much business there is there.

Q. I did not ask you how much business there was, I asked if it was not a terminal point. But you need not pursue that investigation further. I see from what you have said that you do not
1356 know where the terminals and jobbing centers are. They are Jonesboro, Hoxie, Fayetteville, Rogers and Fort Smith.

A. I know where the terminals are, but there is nothing in this record to show how much business originates at these points to which you make reference, and how much——

Q. And you know nothing about the volume of the business at those terminals?

A. There is nothing in this record to show that.

Q. You have no knowledge as to that?

A. There is nothing in this record to show.

Q. If you don't know that how are you qualified to make a statement that on account of the short average haul of the intrastate it did not use those terminals; if you don't know anything about the movement of the business what have you upon which to predicate a statement which assumes that a comparatively small amount of the intrastate business originates, ends at, or passes through these jobbing points? Tell me what basis you had for that statement?

A. Because the average intrastate haul was 25 miles. You know, as has been testified to, on the revenue side, particularly, that the trans-state business uses the divisional terminals. That we know. And that most of the interstate business uses these terminals, and that the average haul of intrastate business is but 25 miles, which will not, as an average or general proposition, put it through
1357 a divisional terminal, although there is no doubt but what some of it originates at these divisional points.

Q. If it should turn out that the larger part of the intrastate freight in Arkansas originates in or terminates at these jobbing centers which are local freight train terminals, and at which the expenses for yard engines making up trains is incurred, would it noe justify this assignment that you are criticising?

A. It would not, for the reason that under this formula if the business originated at one of these jobbing points that was a divi-

sional terminal, it would be charged with a terminal handling at that point.

Q. But would the expense of making up the train in which it moved be properly charged to line?

A. If a shipment originated at a divisional point, under this formula, the expense of putting it into the train would be charged to line, but ought actually to be charged to terminal.

Q. That is your idea, based upon the fact that the formula does not correctly assign that——

A. That is right. The formula does not make the correct division between line and terminal.

Q. But in order to conform to the division made in the formula would it not be proper to charge it to line?

A. The division in the formula is wrong.

Q. I was not asking whether it was right or wrong. I
1358 asked if it would be proper under the formula.

A. Under the formula the expenses would be charged to line, but that assignment between line and terminal in other places is wrong.

Q. Does not the formula used by the Company assign this yard expense to the intrastate traffic in proportion to the number of miles that traffic has moved?

A. My understanding of the formula is that it takes all of this line yard expense and throws it into a common pool, and divides upon state and interstate miles, thereby dividing the tons which did not use a terminal at that divisional point with the expense of an additional one.

Q. Then I will ask you if there is any reason why freight that is loaded on a train after leaving the terminal station and is unloaded before reaching the terminal station, should not bear its proportion, according to the length of the haul, of the expense of preparing the train to run over the division and carry all the freight offered, including that which is not loaded and unloaded at terminal points.

A. If you refer to a specific point, my answer is yes, but in this common pool proposition, under the method used in this formula no part of the expense of operating the yard at Harvard is charged against the state and interstate tons which moved, for instance, out of Fort Smith.

Q. Is a shipment that moves from Marked Tree to Hoxie charged with part of the Fort Smith terminal?

1359 A. It bears from the common pool, yes. That is why it is wrong, because it ought to bear the specific expense to which it refers.

Another reason is, a shipment that goes through two of these divisional terminals, that one division has its burden lessened by charging some of that expense to shipments which did not use a divisional terminal.

Q. If you exempt that class of freight from its proportion of this expense, would it not result in throwing a burden on the freight which went into or out of terminals?

A. What class of expense do you refer to?

Q. The stuff that moved between local points and did not originate or terminate at terminal points.

A. It would be improper to exempt it from its proper charge, but by throwing all of this divisional terminal expense into a common pool and charging shipments which did not use and could not be affected by divisional handlings with some of that expense is wrong.

Q. Is not every pound of freight that is carried in a train affected by the expense of making up and breaking up the train at the terminals?

A. Every pound of freight that is carried in a train between Monett, for instance, and Fort Smith, is not affected by the terminal at Harvard, for instance.

Q. Trains are made up for the purpose of carrying freight, are they not?

1360 A. Yes, sir.

Q. And passenger trains for the purpose of carrying passengers? You could not move either freight or passengers without making up trains for the purpose of transporting them, could you?

A. That is right.

Q. It is right, then, that every pound of freight and every passenger that gets on that train ought to contribute his or its proportion, or be charged with his or its proportion of the expense of making up that train, whether it got on or was put on at a terminal or at a local station, is not that true?

A. That is true as far as it refers only to the specific divisional handling on the specific district under review, but no system of accounting is correct or brings proper returns when tons of freight, for instance, between Fort Smith and Van Buren are charged with divisional handlings for freight which moved from Kansas City to Birmingham through Harvard.

Q. Then your objection does not extend to the charging of freight which does not originate or terminate at terminals with its cost of making up trains as line expense, as it is to the pooling of it?

A. The common pool business.

Q. That is the ground of your objection?

A. Well, that is a portion of it.

1361 Q. If there is any other ground state it.

A. I don't think that a shipment that moves between two points in between divisional points ought to bear the expense of making up a train at the divisional points, excepting the part of the expense which refers to the engine and, perhaps, a caboose.

Q. How about the car that is put in the train at a terminal point and into which the freight that is picked up on the run is loaded?

A. In L. C. L. business that is all right, but the formula don't call for that. The L. C. L and carload are all thrown in a common pool.

Take a local train picking up a car at a way station for another way station between terminals——

Q. How about the empty car that comes from the——

Mr. Hill: Let him finish.

Mr. Moore: I thought he had finished.

A. —which car is destined to another way station, say the next station on the road: That car ought not to bear any other divisional terminal cost, for the simple reason that that car did not receive any benefits except from the engine and caboose.

Q. How would that car be moved except for the line expense that is incurred at the terminal?

A. I don't understand that question.

Q. I say, if the line expense had not been incurred at
1362 the division terminal in making up that train, how would that car have been moved?

A. Expense is incurred at the divisional terminal which affects the locomotive and the caboose, but not the cars in between.

Q. Suppose that car was empty when it left the terminal and was sent out empty because there was some loading for it at a local station: How about that case?

A. I said in the case of the L. C. L. business that has been taken care of.

Q. Suppose the car was filled at a local station and made a carload shipment instead of an L. C. L.?

A. The next day when it was picked up, for instance, it ought not to bear, that loaded car ought not to bear any of the divisional terminal expense of the empty car here because in this assignment it it divided between state and interstate on the basis of the net tons.

Q. Is there any difference in taking out an empty car for the purpose of having it loaded to its capacity and loading 100 pounds into a car?

A. Well, under this formula that empty car movement is taken care of.

Q. I am talking about the reason and common sense of it: Is there any difference?

A. Yes, there is a reason.

Q. What is it?

1363 A. If the empty car is taken out on a local train, if you apportion it over state and interstate on the basis of net ton miles, you have already taken care of that.

Q. I asked you if there was any reason why there should be a distinction made there, and it should not be charged with its proportion of the expense?

A. Yes, there is a reason, because if this train was going to wait for this carload shipment it would be a different proposition than it would if it picked up a carload.

Q. Do you apply the same reasoning to the passenger train line expense at terminals?

A. Under the formula all passenger switching is considered as line.

Q. Is not that expense chargeable to every passenger that gets on the train at a way station?

A. Well, the passenger that gets on between stations might more reasonably bear some of the terminal switching than the freight that moves, but the comparison is not a good one for the reason that a

passenger train generally moves right straight through between divisional points without a change, whereas freight trains are made up and broken up on the line.

Q. Is it not proper that the passenger should be charged with his proportion?

A. Passenger is different than freight——

Q. Do you mean by that that it is proper? That is what
1364 I want to know. You can answer that in a direct way.

A. No, I don't think that the division of expense between line and terminal, between freight and passenger, is——

Q. I am not asking about the formula; I am asking you about what we do under the formula—if the line expense of passenger trains at terminals should not be charged to all passengers that ride on the train without regard to where they go on it? In other words, is not the whole train made up for all the passengers that are on it?

A. More nearly so than freight, for the reason that the consist is seldom changed.

Q. I am not asking for a comparison but just your opinion one way or the other: Should it or not be done?

A. I should say that it is not entirely proper to charge passengers who get on between stations with some of this expense.

Q. Why not?

A. Because they don't use these divisional terminals. For instance, a passenger going between two local stations in Arkansas not using a dining car, when this dining — is set on or off the train—or the sleeper, as the case may be—he ought not to be charged with that expense, with his pro rata of that expense.

Q. Is not that a facility that is put there for the benefit of the passenger?

A. Yes, but he might not use it and in this case he did
1365 not use it.

Q. On the same principle the cost of putting a water tank in there and putting water in ought to be charged to those who drink and not to those who do not drink?

A. If you are going to follow out the use basis, yes, sir.

At this point adjournment was had until Tuesday, November 10, 1914, at 9 o'clock in the forenoon.

1366 ST. LOUIS, November 10, 1914.

Met pursuant to adjournment as above on Tuesday, November 10, 1914, at 9 o'clock in the forenoon.

The following proceedings were had:

Mr. Moore: I have no further questions to ask Mr. Mayer just now.

Redirect examination of Mr. Mayer.

By Mr. Hill:

Q. Mr. Mayer, you stated last night, using an illustration of a water tank, that if you divide on the use basis it would be charge-

able to the man who drank the water: I wish you would explain your idea about that using that as an illustration, as applied to the passenger and freight, to the use of trains that are made up and broken up in terminals.

A. Well, if you are going to follow out this basis it is proper to charge to the factors which use a facility the proportion of expense which is proportional to its use, to the actual service which is rendered.

On the freight side of the question, if you were to follow the use basis in charging of divisional costs, the line proportion only, it is proper to charge to the cars or tons which actually make use of the divisional facilities, and not charge any portion of that expense (except so far as it refers to or covers the expense of the engine and caboose of a freight train) to freight cars which are actually
1367 handled through that divisional terminal.

Even if a car is picked up at an intermediate station destined to another intermediate station between the divisional terminals, that car should not be charged equally with the divisional terminal handling, but should receive its pro rata of the charge through the amount assigned to the engine and the caboose.

Q. You are speaking of the carload proposition?

A. Yes, sir.

Q. Now take the L. C. L. proposition.

A. If an empty car is placed in a local train, we will say, at a divisional terminal, that empty car which is intended for handling L. C. L. business between intermediate stations between divisional terminals, should bear its pro rata of the divisional terminal expense, which will result in charging the L. C. L. business the same as the engine and caboose, for the reason that that empty car actually received divisional terminal handling, and in making a proration of the expense the business which is actually handled in this car for intermediate stations will receive its due proportion of the divisional terminal expense.

Q. Take up the passenger side of it.

A. I still think that the passenger is a different proposition than the freight. Passenger trains which commence at one divisional terminal generally run through as one unit, and, except the picking up or setting out of sleepers and dining cars at inter-
1368 mediate stations, the expense should be pro rated to the business which is handled on the train.

Q. Is not passenger more like an L. C. L. package of freight than it is like a carload?

A. Almost all passenger business, and the exception is, of course, theatrical business, and business of that nature, is comparable with L. C. L. freight for the reason that you do not pick up a carload of passengers; in a passenger train with that one exception, as a rule, and practically always, passengers get on or off piecemeal, get on or off one at a time.

Q. Individually?

A. Individually, yes, sir.

Q. And for that reason they are properly chargeable, with the

exceptions you have noted, with the making up and breaking up of the train by which they are served?

A. Yes, in passenger.

Q. Just like the L. C. L. freight would be chargeable, carload is moved differently and should not be so charged, as I understand your views?

A. Yes, that is correct.

Q. You made a statement last night that freight and passenger was not divided in 1907 on the engine ton mile: How was it divided in 1907? I am referring to these exhibits in this case.

1369 A. No actual division was made on the ton mile or any other basis, of the passenger and freight expenses in the four months of 1907. Indirectly such a division might be partially inferred from this angle: The extra cost figures which were arrived at under this formula for the test months, and then the year ended June 30, 1913, were applied to the four months of 1907 in percentages; that is, intrastate business was claimed to have cost a greater per cent—about 319, I think it was—in 1913 than interstate, and then the units in 1907 were increased in accordance with this percentage. There was no separation made for the four months of 1907, between passenger and freight.

Q. But this percentage was applied to the test periods by separating passenger and freight on the engine ton mile and was necessarily reflected in the percentage which they obtained there, or as extra costs of intrastate?

A. Yes, it was reflected as you say, but the value of that reflection, even based on the assumption that the formula was correct or proper, would naturally depend upon the normality and reasonableness of the principles used, about which I have previously testified.

Mr. Hill: Mr. Moore, I did not expect you would be through by this time, and I believe it will expedite matters if we adjourn until 11 o'clock, if that will suit you?

Mr. Moore: Just as you like.

At this point a recess was had until 11 o'clock A. M. on Tuesday, November 10, 1914.

1370 After recess on Tuesday, November 10, 1914, the following proceedings were had at 11:30 A. M.:

Redirect examination of Mr. Mayer.

By Mr. Hill:

Q. I have read over only part of your cross-examination and I want to call your attention to some parts of that which I have read over:

On page 1306, the question was asked:

"Q. You mean the rating represents that?

A. The rating, time, distance traveled, is supposed to represent the potentiality, and is so used in this case by the Frisco."

I will ask you just what you meant by that.

A. That word "distance" should read "districts"; and the word "time" should be omitted. That answer should have read: "The rating on the district travel is supposed to represent the potentiality", etc.

Q. Time does not enter into that?

A. No, sir.

Q. At the top of page 1311—I don't know whether this is correct or not, but it says:

"I stated I did not know the technical manner in which the tractive power was made up. Yet that factor must be correct, because it was used in making up the rating of engines, which was used in correcting or watching the efficiency of railroad operation."

Is that a correct answer?

A. That factor must be considered. The word "correct" should be "considered." The rest of the answer stands the way it is given.

1371 Q. Here is one on page 1313, the third paragraph from the bottom:

"A. It does, therefore the actual train load fluctuates. And that is another reason why the engine ton mile is a good method of dividing," etc., etc.

A. The word "not" should be inserted. It should read, "And that is another reason why the engine ton mile is not a good method of dividing," etc.

Q. At the top of page 1314, you have a train load of 275,000 gross tons.

A. The three zeros were placed there in error. It should read 275 gross tons.

Q. Next to the last paragraph on that page, it says "For instance, we find loss of time where with the same engine and practically the same conditions," etc.

A. That should read, "For instance, we find lots of times", etc. That is a mere typographical error.

Q. At the bottom of page 1315, is this question:

"You know the rating of an engine would be affected by accidental and fluctuating causes and that there necessarily would be a deviation from the time-card rating? As a matter of common sense, you knew that, didn't you?

A. Yes, I know that.

Q. You knew that, did you?

A. Yes, sir."

I will call your attention to that answer.

A. I should have answered that question "The rating of the engine does not fluctuate but the actual performance of the engine fluctuates."

Q. I think the mistake is in the question and you took
1372 rating for loading, I presume?

A. Yes, sir.

Mr. Hill: I have not read over the balance of this record, but I will have Mr. Mayer go over it and correct typographical errors.

Cross-examination.

By Mr. Bledsoe:

Q. Mr. Mayer, you read yesterday certain extracts from a printed memorandum entitled, "Separation of Operating Expenses between freight and passenger service," which you say was received by you sometime since from some officer of the Interstate Commerce Commission: Will you state about when you received this statement?

A. I will say 60 days ago. That is my recollection.

Q. Do you remember the name of the officer of the Interstate Commerce Commission transmitting the same to you?

A. I know it was from the statistician's office, but I don't know whether Mr. Meyer's name was signed to the letter or Mr. Lorenz'.

Q. It was one or the other, was it?

A. Yes, sir, it was from the statistician's office.

Q. Did that letter explain what this statement was?

A. No, sir. It was supposed to be self-explanatory. This is a study on the matter of the separation of expenses between freight and passenger, which will be required according to an opinion
1373 issued by the Interstate Commerce Commission, 30 I. C. C. 676.

Q. That opinion really is a suggestion that the Commission will work out the relative expense of conducting freight and passenger business, including line and terminal maintenance charges, and so on?

A. It is a basis for study.

Q. The purpose, however, of the opinion referred to is to work out a basis of accounting for the division of expenses between passenger and freight?

A. The opinion of the Interstate Commerce Commission is for that purpose, yes.

Q. And the paper you read from is a preliminary study directed to that end?

A. The Committee reports which I read were contained in a booklet, which is a study for the division between freight and passenger, yes.

Q. I am asking you particularly about the pamphlet we are now dealing with. It is a study looking toward the solution of the problems involved in this case?

A. Yes, sir, and containing extracts from the report of the Committee of the American Railway Engineering Association, as I read.

Q. You expressed your judgment that the gross ton mile represented the most accurate basis for the division of wear and tear expenses of line as between freight and passenger: Am I
1374 correct in that?

A. Partially, yes. Correcting you, I would say the gross ton mile represents in my opinion the best factor for dividing the use——

Q. Let us get away from the use. I don't want to talk about use or the value of the property, but I want to talk about operating expenses and I want to know what factor you say is the best factor

for a division of the line maintenance charges between freight and passenger?

A. I said 10% of it—or 10% to 25%.

Q. What I asked you then was intended to include the wear and tear from the traffic—the effect of the traffic moving over the line.

A. But not to include elemental damage?

Q. My first question included wear and tear, the effect on the track following or flowing from the movement of the traffic over the track.

A. I said the gross ton mile was the best for that purpose.

Q. What did you apply for the division of what you term "weather stress" or "elemental damages?"

A. I said if I were making up an exhibit I would apply the gross ton miles and make another exhibit showing the car miles, and direct the Court's attention to the fact that neither one of them, or no basis, was accurate for a division of this 90% which is caused by elemental conditions.

1375 Q. But suppose you were solving it yourself, and didn't have to put it up to a court, then what?

A. Then I couldn't solve it.

Q. Could not solve it correctly?

A. No, sir, not absolutely correctly.

Q. I don't mean, "with mathematical accuracy" as our good friends in Oklahoma are so fond of saying—but can you find a practical solution that would approximately divide, first your wear and tear on your line properties; and, second, that would divide that which results from weather stress?

A. No, sir. I don't believe anyone that I could find would be actual or near enough to say it would be practically actual.

Q. At one time you believed in the gross ton mile as a basis for a division of the whole thing.

A. I still believe in the gross ton mile for the 10%; and I believe that it is better than the train mile and perhaps better than the car mile now. But I don't consider it is entirely correct.

Q. But at one time you did believe in the gross ton mile for the division of this entire line maintenance charge?

A. I said that was a method of division, and the best I knew of.

Q. You were endeavoring to prescribe a formula which would accurately divide between freight and passenger?

A. No, sir, I was getting up a proposed order that was to
1376 be used as a basis for study and assistance from the carriers in order that we might arrive at some practical solution. But none of that order was adopted and I merely stated at that time I thought it was the best method of division—and I still think it is.

Q. You think it is reasonably accurate?

A. The gross ton mile?

Q. Yes.

A. For the 10% I should say yes. And more so than any other for the rest of it, according to my opinion.

Q. Where do you get the 10%?

A. When I said 10%, I meant all the way from 10 to 25 per cent, as the case might be.

Q. Do you remember what Mr. Henshaw figured it out, weather stress and wear?

A. I don't remember.

Q. 70 and 30, instead of 90 and 10, wasn't it?

A. That might be his opinion, perhaps. I don't know what he based it on.

Q. You know he wrote an opinion of 250 or 260 pages, don't you?

A. What I meant in the 10%, I meant that to be representative of the portion that is damaged on account of the actual use of the track, as compared to the 90% which represents the repairs on account of elemental conditions. I didn't say 10 and 90.

1377 Q. I believe you said yesterday that gross ton mile did not give any force or effect to the factor of speed in a division between freight and passenger.

A. No, sir, it does not.

Q. If speed is a factor to be considered that would depart from accuracy to the extent that speed as a factor would be considered?

A. Yes, sir, but I am reminded that in this booklet or study this suggestion was made:

"With perfect track and with perfect rolling stock, weight and not speed is the important element of wear."

Q. What is the second down there?

A. "(2) But at high speeds, a better track is required than at low speeds, especially for the comfort and safety of passengers. We find rails on passenger track taken up and relaid for freight use."

Q. Now, what is the third?

A. "(3) The condition of the wheels of passenger cars is on an average better than that of the wheels of freight cars."

Q. And what is the fourth?

A. "(4) Freight cars are frequently run at high speeds for limited distances."

Q. What is the fifth?

A. "(5) A ton of locomotive weight probably does more damage than a ton of car weight."

That is where the engine ton mile is deficient.

Q. I would like to ask that the witness, following his answer to every question I may put to him, be permitted to add that

1378 does not approve of the engine ton mile as a basis for a division of expenses between freight and passenger.

Now, will you proceed to the next item, which is No. 6?

A. "(6) At curves the elevation of the outer rail to an extent suitable for high speed passenger traffic interferes with the heavy low speed freight train requirements."

Q. What is the seventh?

A. "(7) Even though the best track may not be necessary for freight traffic, nevertheless, the freight service is benefited by a good track. Derailments are costly."

Q. Mr. Mayer, that was convincing to you because it came form the American Railway Engineering Association's report?

A. No, sir. Those paragraphs I have read you are not from the American Railway Engineering Association's report.

Q. Are you sure of that?

A. At least it is not so shown here (indicating booklet).

Q. I want to ask you if you have ever actually examined that report?

A. No, sir, I have not. But there are some things in what I have read that are convincing to me and some with which I do not agree.

Q. Yesterday you said that got a great deal of probative force to your mind because of the fact that it came from the
1379 American Railway Engineering Association.

A. I didn't read this part into the record yesterday.

Q. Referring to what you did read into the record.

A. What I did read yesterday was only a Committee's report, and what I am reading now is something else.

Q. The effect in your mind was largely based upon the fact that it represented the judgment of the Committee of the American Railway Engineering Association dealing with that subject.

A. The part I read, yes.

Q. Suppose the last part you read did not come from the Committee at all, and the part you did read was simply a garbled extract, not including what that Association said about it: Would that have any effect upon your mind?

A. It would show there was an error here in quoting, yet if the propositions are true and I believe in what I said, that would not affect the value of it.

Q. Would a mathematical demonstration affect your mind at all? If you could have it demonstrated mathematically that your views were wrong, would that affect your judgment?

A. Yes, but that is a different matter from this.

Q. Suppose I read from the report of the Railroad Committee on economics of railway location, as found in Volume 14 of the Proceedings of the Annual Convention of the American Railway Engineering Association for the year 1913, beginning with
1380 page 579 and extending, with its exhibits, down to the bottom of page 651. The members of the Committee being:

Mr. A. K. Shurtleff, Office Engineer, C. R. I. & P., Chicago. (Now on President's Commission on Valuation of Railways.)

Mr. F. H. Alfred, General Manager, Pere Marquette R. R., Detroit.

Mr. A. C. Dennis, Manager, Foley Brothers, Welsh & Stewart, No. 202 Chamber of Commerce, Winnipeg, Man., Can.

Mr. C. P. Howard, Consulting Engineer, Chicago.

Mr. F. W. Green, General Manager, Louisiana & Arkansas R. R., Stamps, Arkansas.

Mr. P. M. La Bach, Assistant Engineer, C. R. I. & P. Ry., Chicago.

Mr. R. N. Begien, Asst. Genl. Supt. B. & O. R. R., Baltimore, Md.

Mr. Fred Lavis, Consulting Engineer, New York, N. Y.

Mr. F. W. Smith, Contracting Engineer, Cincinnati, Ohio.

Mr. H. J. Simmons, Gen. Mgr., El Paso Southwestern System, El Paso, Texas.

Mr. Walter Loring Webb, Consulting Engineer, Philadelphia, Pa. Is that the gentleman you were talking about?

A. No, sir.

Q. And Mr. M. A. Zook, 325 Franklin Place, Plainfield, N. J., now office consulting engineer on valuation of the Interstate Commerce Commission.

Those are the names (and the official titles I have gained from the Association's Books) which appear at the head of the Committee's report at page 579 of this Volume 14.

Now turn to the quotation you read. You read a quotation from the last page of that pamphlet, beginning:

"Criticism may be made of adopting a traffic unit that involves the estimating of passenger train tonnage. Nothing can be done of value if the work of the Committee is to be based in the terms of statistics as kept at the present time. Net ton miles, freight and passenger train car miles is kept; also road engine mileage separated between freight and passenger service. Weights of locomotives are a matter of record. The estimating covers the assumption of an average weight for empty freight cars, which at present is about 18 tons, and an average weight per car and load of passenger train cars. At the present time 44 tons per passenger train car of the average train will not lead to great error, and the average passenger train in the United States has approximately 5.3 cars per train. This last figure is not necessary for the use where passenger train car mileage is available."

1381 Now, I want to read to you from page 582 of this book what the Committee said about it, from the report of the Committee, down to that part you read, because that which you read is sliced out of it.

The report reads as follows:

"In studying average maintenance expenses by divisions for a period of years on the large system previously mentioned it appeared that the best unit of traffic measurement of expense was what we will term the equivalent ton mile. The total equivalent ton miles would be the sum of the following:

Double the freight locomotive mileage times average weight per locomotive.

Four times the passenger locomotive mileage times average weight.

Total freight ton miles (cars and contents).

Double the passenger ton miles (cars and contents).

This unit considers that one ton of passenger car does double the injury of one ton of freight car, and that one ton of locomotive affects the track as much as two tons of the train back of the locomotive. This unit of measurement even best fits the increase of maintenance of buildings due to increase of traffic and consequent increase in number and size of buildings. Passenger traffic demands a higher type and better grade of maintenance than freight, and even a better type of shop buildings for repair.

With the exception of Account 4, Rails, there is a minimum expense for the accounts affected by volume of traffic due to depreciation and decay. This expense must be met to keep the road in shape

for operation. The increase in expense above this minimum is practically directly proportional to the equivalent ton mileage passing over the tracks. There may be a slight loss of rails by corrosion, but its effect on the general account cannot be noticed and the cost can safely be considered directly proportional to the equivalent ton mileage."

Then follows the quotation which you read yesterday beginning with "Criticism may be made", etc.

1382 You did not have the benefit of the engineers' opinion that I have read to you now, when you read from that yesterday and expressed your opinion?

A. Yes, sir, I read that report down in Fort Smith.

Q. You read this report at Fort Smith?

A. Yes, sir.

Q. Did you think it was fair, if you have read this report, to use that one thing which was a criticism, and eliminate the formula that a committee of engineers presented to that body as a proper basis?

A. I didn't have that book here. I didn't discover I had this other one until lately.

Q. You knew the contents of that book?

A. Yes, sir, and I knew then and I know now that this engine ton mile does not take into consideration the factors you have mentioned here.

Q. Yet you presented it yesterday for the consideration of the Court on the statement that it was a recommendation of the American Railway Engineering Association's Committee for a proper basis for division, didn't you?

A. No, sir. I read it all. I said here is what the Committee of Engineers has to say. I didn't say they recommended it.

Q. Did you intend to lead the Court to think that that represented the judgment of the Committee.

A. So far as what I was testifying to, yes.

1383 Q. And you think it is a fair and proper and legitimate use of a record to split a sentence in two and take a part which does not undertake to measure it and give it to the Court as the judgment of the Committee on that matter?

A. If I had had all that report you have, I would have read it all into the record. But that is the only part which appears here in the study (indicating pamphlet) and I read that from the study.

Q. You were familiar with the report and knew that they recommended the equivalent of ton miles?

A. I didn't remember it yesterday, but I do recall it now.

Q. You recall they prescribed that basis?

A. Yes, sir, and I recall that the factors you have considered were not included in the engine ton miles.

Q. I did not suppose you are here to try the case, or act as counsel on either side. I supposed you were to come here with an impartial mind, to try to find the truth and try to present the truth as you found it.

**A. Incidentally——**

Q. Not "incidentally." You answer my question first. You are here, are you or not, to show the truth of the matter?

A. I am here to show the truth of the matter but incidentally I had to show that the engine ton mile was not a proper factor for division, and in so doing I read from this study.

1384 Q. Were you here to conceal a part of the truth?

A. No, sir.

Q. Didn't you do that when you read a part of that and excluded the other part?

A. I didn't have it. If I had had it I would have read it, because it is an argument against the engine ton mile in its entirety.

Q. It shows that the engine ton mile has a proper basis.

A. It shows it has not a proper basis.

Q. And it shows that your proposed gross ton miles, which wholly disregards speed, is not a proper factor: Doesn't it show that?

A. It tends in that direction, yes. And it also goes on to show that the engine ton mile does not take into consideration the weight of the train behind it.

Q. What part of the formula I have read you shows that?

A. It says in this report, in a portion of it, "in arriving at the total equivalent ton miles use the total train miles, car and contents." And it also says, "Double the passenger ton miles (car and contents)." And the engine ton mile does not do that either.

Q. What do they double the passenger ton miles for, for the purpose of comparing with the freight ton miles without doubling?

A. I will have to see that report to answer a question of

1385 that kind.

Q. Without seeing the report answer the question.

A. I don't know what object they have for doubling them, except the reason given in the report.

Q. The reason given in the report is: "This unit considers that one ton of passenger car does double the injury of one ton of freight car."

A. That is the reason, then.

Q. That is on the ground of speed, then?

A. I don't know what ground it is on.

Q. You haven't any idea?

A. That would not be my idea, that they had to double it; but they may have considered that when they made up this formula.

Q. In your judgment are they correct in the assumption that the engine per ton hauled over the track does twice as much damage as the car does?

A. I couldn't express that in per cents, twice as much. I know it does more damage than the car, yes.

Q. You know it does more damage than the car?

A. Yes.

Q. What would you say as to a given train running over the same track would do more or less damage at 30 or 60 miles an hour?

A. I don't think there would be very much difference.

Q. You don't think there would be very much difference?

A. There may be. They have taken those matters into
1386 consideration when they made up that equivalent ton mile proposition. I presume they did. I wasn't at the Committee meeting. All that goes to show to my mind that the engine ton mile does not take into consideration these factors about which I have testified.

Q. I am willing to agree that everything that it said, whether mathematically demonstrated or otherwise, does not take into consideration the engine ton mile and you may take it for granted that that will be added at the conclusion of each answer you make. That that convinced your mind that the engine ton mile is not a proper theory, whether it is a mathematical demonstration or otherwise.

A. And I have shown that up in the testimony.

Q. Shouldn't you have added that you are determined to prove it, regardless of the facts?

A. That I am determined to prove it regarding the facts.

Q. Well, we disagree about that.

Reading further from this report, at page 587, it says:

"One ton of passenger train does more damage to track than one ton of freight train and the locomotive creates more disturbance than an equal weight of cars and contents. Until data is available to correctly estimate the relative damage, it is recommended that the following ratio be used in estimating effect of traffic on the accounts in Group (*a*):

One ton of passenger car and contents produces approximately the effect of two tons of freight car and contents.

One ton of locomotive produces approximately the effect of two tons of the balance of its train.

The total ton mileage reduced to terms of ton miles of freight car and contents is termed the equivalent ton mileage."

1387 A. I still contend that those factors have not been taken care of in the engine ton miles.

Q. I understand that. I have agreed that you may put that statement in in connection with any answer you make, whether it answers my question or not; and that it may be considered in the face of a mathematical demonstration that it is not true. I do that so it may not be necessary for you to repeat it every time you answer a question.

Witnesses usually regard it as important to answer the questions put and not to act as counsel in the case.

A. But my answer necessarily has to include that.

Q. Your answers need not necessarily have to include that if you were an impartial witness, seeking to get at the truth.

A. I think I have shown the truth up.

Q. Continuing with my examination, after the witness has had an opportunity to express his opinion that he does not regard the engine ton mile as a proper factor for the division between freight and passenger, I will now read further from this report of the American Railway Engineering Association.

On page 588 of this volume, it says:

"Most of the accounts in Group (*a*) have a constant maintenance

expense due to age and decay plus an additional expense depending on volume of traffic. This additional expense per mile of main track varies most directly with the equivalent ton mile. The
1388 equivalent ton mileage can be approximated by adding together the following:

Net freight ton mileage.

Double the freight locomotive mileage times average weight in tons.

Freight train car mileage times the average weight of empty cars (at present about 18 tons).

Double the passenger train car mileage times the average weight of car and contents (at present about 44 tons).

Four times the passenger engine mileage times the average weight in tons."

Now, that is the end of that paragraph on page 588. Then they take up another basis of division between line and side tracks.

Now, I want to call your attention, Mr. Mayer, to the fact that the quotation appearing on page 4 of the study:

"Summarizing, in the absence of precise data, and taking into account the complexity of the problem", etc.

is from a letter that Mr. Wilgus wrote, and not from the report of the Committee.

A. It was included in the report of the Committee.

Q. No. It is included in the discussion of the report of the Committee appearing at page 1183, and is not a part of the report.

A. What was it? A letter to the Committee?

Q. Printed reports of these Committee are sent out prior to the meeting. Mr. Wilgus was not present at the meeting and did not participate in the discussion, but he sent a letter and that quotation was a part of his letter.

A. But it was included in the report of the Association.

1389 Q. He was permitted to go on record as if he had been present.

For Judge Hill's information I will say that the report shows that the matter was further referred to the Committee for further consideration and report; this paragraph 4 which we have been considering and paragraph 5, which was dependent upon paragraph 4.

Redirect examination.

By Mr. Hill:

Q. Mr. Mayer, I wish you would attach as an exhibit this booklet entitled "Separation of operating expenses between freight and passenger service," from which you read yesterday and upon which Mr. Bledsoe has been questioning you.

A. I will attach it as Exhibit DD.

Q. When you read that did you assume that the statistician, or whoever compiled that paper, had correctly reported the matter as coming from that Committee?

A. I assumed so, yes. It also shows on that printed book. I had no reason to doubt it.

Q. You said you read this report of the American Railway Engineering Association: I presume you are referring to the time when I borrowed a copy of this report and you and I read it in my office?

A. Yes, sir.

Q. That was four or five months ago?

A. That was in June.

1390 Q. Have you seen it since?

A. No, sir, we have no copy of it.

Recross-examination.

By Mr. Bledsoe:

Q. Doesn't that booklet itself show that it did not come from the report of the Committee, but from the statement of Mr. W. J. Wilgus? Read that quotation and see if on its face it does not show it came from Mr. Wilgus.

A. It is headed as follows: "Until engineers have made determined experiments"——

Q. You are not reading what I want. Just above the quotation you read as coming from the Committee it says: "Until engineers have made determined experiments, we can do no better than to accept the conclusion of Mr. W. J. Wilgus, Consulting Engineer."

A. Yes, sir, and this paragraph which I read follows that, and afterwards shows the following information, showing what it is taken from, "American Railway Engineering Association, Volume 14, 1913, page 1135."

Mr. Hill: You took that to be an excerpt from their report?

A. Yes, sir.

1391 LESLIE N. SIMSON, recalled, testified on behalf of the defendant, as follows:

Direct examination continued.

By Mr. Hill:

Q. When you were last on the stand you said you had Exhibits W and X which had not been typewritten. You stated the substance of those exhibits. I wish you would now produce them. I understand you have already furnished the Railroad copies of them.

A. Yes, sir. Exhibit W covers the detail of adjustments to maintenance of equipment expenses for the four months ended December 31, 1907, as applied to the expense assigned by the Company to the state of Arkansas in its Exhibit 27-A compiled under the old formula.

Q. You mean Mr. Douglas' compilation?

A. Yes, sir, Mr. Douglas' formula. The accounts affected are work equipment repairs, work equipment renewals, work equipment depreciation, steam locomotive repairs and depreciation.

Q. Are those the only two accounts affected?

A. Under maintenance of equipment, yes. There are five accounts.

Q. Under maintenance of equipment there are these two?

A. Yes, sir, work equipment repairs, renewals and depreciation;

and steam locomotive repairs and steam locomotive depreciation.

1392 Under the old formula the division between states was laid out to be made upon a work train mile basis.

Q. Which one?

A. That will apply to work equipment repairs, renewals and depreciation—all three.

In September, 1907, this was applied by divisions, that is, to repairs, renewals and depreciation as charged to divisions were apportioned to Arkansas by the relative work train miles in Arkansas on the division as against the total work train miles on the division.

In October, 1907, and from then on the application of the formula was changed to pool all of the expense on the road and apportion to Arkansas the percentage of work train miles in Arkansas as against the work train miles upon the entire line.

In other words, it was a "pooling" of the entire expenses and a division upon the broader basis of considering the proportion of the whole line work train mileage which occurred in Arkansas.

Q. That was contrary, as I understand you, to the printed formula prepared by Mr. Douglas?

A. The printed formula, no, it was not necessarily contrary. The printed formula merely said "work train miles." It did not designate that it should be applied by divisions or the whole line, or in any other way.

1393 In my opinion, however, the located expense in the locality can be much more accurately apportioned than to flatten the expense over the entire line. And for that reason I believe that a division of the localized expense on the basis of the localized mileage is preferable and more accurate than a division of the entire line expense on the proportion of the entire line mileage occurring in Arkansas.

For that reason we have corrected or adjusted the assignment of expenses to Arkansas by substituting for the entire line mileage the localized proportions, which results in a decrease of the assignment as shown by Exhibit 27-A for work equipment repairs:

| | |
|---|---|
| In September, 1907, it is | $672.50 |
| October | 659.41 |
| November | 213.77 |
| December | 42.89 |
| A total of | $1,588.57 |

In like manner the same change, on the same basis, has been applied to work equipment renewals, with the result of a reduction of the Company's assignment in September of $33.25.

| | |
|---|---|
| In November | $68.89 |
| In December | 1.04 |

And an increase in the assignment, over the Company's assignment of 52 cents in October.

The computation being identical, this results in increasing the Company's assignment to Arkansas by 52 cents and decreases
1394 it $103.18.

Applying the same correction on the same basis to the depreciation item, I might say parenthetically that no depreciation was charged in the month of November—I do not know for what reason—it was either overlooked or left out purposely, but the Company's assignment was over in October by $27.57 and in December, $36.07, which results in a decrease of $63.64, while in September the Company's assignment was under $94.53.

On steam locomotive repairs the formula provided for the use of locomotive miles. The locomotive miles used were all locomotive miles, including yard engines.

Mr. Moore:

Q. Used by whom?

A. In the assignment by the Company. Originally it was all locomotive miles in the month of September and as reworked for September and as applied by the Company in subsequent months, it was on the basis of the total freight and passenger locomotive miles only in Arkansas.

Judge Hill:

Q. Freight and passenger?

A. Yes, sir, freight and passenger locomotive miles.

Q. Just what is the difference? Point that out.

A. The difference is whether steam locomotive repairs, which covers all repairs on all locomotives, should be divided on the basis of the relative freight and passenger locomotive miles only,
1395 in Arkansas. Or, whether it should be divided on the basis of all locomotive miles, including yard engines.

Q. And mixed trains?

A. Mixed trains, yes.

Q. And what about "light" engines?

A. All engines.

Mr. Hamilton: They are assigned to freight or passenger.

A. We have corrected the Company's basis by assigning to Arkansas upon the basis of the total locomotive mileage in Arkansas as compared with all locomotive miles, including yard engines.

Mr. Moore:

Q. You mean Mr. Douglas' basis when you say "the Company basis?"

A. Yes, sir.

Mr. Hill:

Q. That was the way it was done in September but not so in October, November and December: Is that correct?

A. I think that is correct.

Q. In your judgment, Mr. Simson, what is the fairest and best basis to divide that expense?

A. The percentage of all locomotive miles in Arkansas is decidedly preferable to the freight and passenger locomotive miles only, for the reason that the repairs are applied to all locomotives. It results in a reduction of the assignment of expense to Arkansas as compared with the Company assignment——

Mr. Moore:

Q. You mean Mr. Douglas' assignment?
A. Yes, sir, Mr. Douglas' assignment under the old formula.

1396 It results in a reduction of the assignment of expenses to Arkansas in September of $1,840.03.

| | |
|---|---|
| October | $2,030.45 |
| November | 873.24 |
| December | 1,313.37 |
| A total of | $6,057.09 |

The same manner of correction has been applied to the steam locomotive depreciation account excepting November, where the Company made no charge upon its books, and included no depreciation in its expenses.

The result is a reduction of the amount assigned to Arkansas under the Douglas formula of $173.69 in September.

| | |
|---|---|
| In October | $192.29 |
| In December | 100.92 |
| A total of | 466.90 |

The total result of the changes in all the items covered by the exhibit is a reduction in Arkansas expenses of $8,184.33.

Mr. Hill:

Q. That covers Exhibit W, does it?
A. Yes, sir.

Mr. Moore:

Q. Do you know whether Mr. Douglas used the same basis as September in any other period than the three months which followed September?

A. No, sir. Mr. Douglas—at least, upon the items I am talking about—I don't know that I would want to say it upon all items in the classification.

1397 Q. I am referring to the one you are talking about.

A. Mr. Douglas changed the method after making it up for the month of September, I think, in several instances.

Mr. Hill:

Q. Proceed with Exhibit X.
A. Exhibit X is the details of adjustments applied to transporta-

tion expenses for the four months ended December 31, 1907 as applied to the expenses assigned by the Company to the state of Arkansas in this Exhibit 27-A under the old or Douglas formula.

The first item of which we make adjustment is "Engine house expenses, road."

Here again in September, under the Douglas formula, the apportionment was made of the engine house expenses, road, assigned to Division from the master mechanics' reports, on the basis of the total locomotive miles in the division, omitting yard engines.

In October the basis was changed to an entire line average. It is a "pooling" instead of a proration by districts.

Mr. Hamilton has changed in his exhibit the original assignment to Arkansas by districts to make it on the same basis as for the months October, November and December. That is, he has applied the entire line mileage.

In this Exhibit X we have reversed this correction of September and have also adjusted October, November and December for the reason that I believe a separation and assignment of a local-
1398 ized expense on the basis of the locomotive mileage in the district is a much more accurate and equitable apportionment than to assume that the expense is equal on all divisions in proportion to the locomotive mileage on the divisions.

Mr. Moore:

Q. As I understand it, you substitute that according to your judgment for the method adopted by Mr. Douglas in the formula prepared by him?

A. Yes, sir. I followed what he did in September, but changed what he did in October.

Mr. Hill:

Q. How does the formula read?

A. It is indefinite. It says, "total locomotive miles."

Q. It does not say by districts or how?

A. No, sir.

The result of this adjustment is a reduction of the amount of expenses assigned to Arkansas in September of $1,324.24; October, $1,175.55; November $1,326.11; December, $1,045.55, making a total reduction of $4,871.45.

The next item is fuel for road locomotives, passenger. This is again a substitution of a division or apportionment of expense assigned to divisions on the basis of the passenger locomotive miles in Arkansas as against a total passenger locomotive miles on the division, and takes the place of the apportionment in Exhibit 27-A of the entire fuel for road locomotives, passenger, on the line, divided by assigning to Arkansas the proportion of passenger locomotive miles in Arkansas as against the total on the line.

1399 In this instance the Company's assignment is less than we have assigned to Arkansas, in each instance.

In September, it is $118.26 less.

In October, 99.58 less.

In November, 127.23 less.

In December, 336.62 less.

And it results in increasing the expenses assigned to Arkansas by $681.69.

The item of fuel for road locomotives, freight, is a question of adjustment on identically the same basis as the preceding item, fuel for road locomotive-, passenger.

That is, it is a question of an apportionment of the assignment by divisions as against an apportionment of the whole line expense.

In November the Company's assignment has been decreased by $4,049.93.

In December, by $291.65.

A total of $4,341.58.

In September the Company's assignment has been increased by $52.85, and in October by $32.86.

The item, "Operation of fuel stations" is again a matter of substitution of localized expense by divisions, apportioned to Arkansas on the basis of all locomotive miles, including yard engines, as against an apportionment of the expenses of the entire line upon the basis of the total locomotive miles in Arkansas to the total locomotive miles of the entire line.

1400 The result of this is to increase the charge to Arkansas in September by $51.11.

In October, by $25.69.

In December, by $441.38.

There is no charge in November. That gives a total of $118.18.

The last item is the question of the division of loss and damage to freight. The Douglas formula called for a basis of freight car miles.

They have used, however, a basis of freight train miles.

I consider that a car mile basis is preferable to a train mile basis and I have substituted the freight car mile for the freight train mile.

Mr. Hill:

Q. That was a case where Mr. Douglas departed from his own formula? There is no question of ambiguity in that, is there?

A. He simply did not use his own formula.

Q. And you used his formula?

A. Yes, sir. It resulted in a decrease of expense in October of $678.00; in November, $521.42; December, $501.78, a total decrease of $1,701.20.

And in September, 1907, an increase of $47.67.

The total of these items results in a net reduction of the amount as assigned to Arkansas in the Company's Exhibit 27-A, and under the old or Douglas formula of $9,980.98.

1401 Mr. Moore:

Q. Does not Exhibit 27-A put the application of the Douglas formula in September, 1907, on the same basis, as the months that follow?

A. Yes, sir.

**At this point recess was had until 2 o'clock P. M.**

1402 After recess on Tuesday, November 10, 1914, the following proceedings were had:

Direct examination of Mr. Simson, resumed.

By Mr. Hill:

Q. Mr. Simson, have you given careful consideration to what is known as the Douglas formula of assigning expenses between the states?

A. Yes, I have studied the formula.

Q. In your judgment as an accountant, what is the value of that formula for the purpose of ascertaining the revenue and expense of a given state in a railroad system?

A. I think that on the average it is an apportionment on a very fair basis.

Q. I am referring to the assignment of revenue and expenses to states under the plan that was followed before this equated method was gotten up, and which was used in making reports to the State Railway Commissions: That is what you had in mind in your answer, was it?

A. I had in mind the Douglas formula. It has been testified that it was used in reporting to the State Railway Commissions. That is the formula I mean.

Q. Not the Douglas affidavit in the preliminary injunction suit here?

A. It is the formula on which it was said the Douglas affidavit figures were presented as to expense. The formula covers only expenses.

Q. It does not cover earnings——

1403 A. I think I had better look. I don't think it does.

Mr. Hill (to Mr. Hamilton): Does it, Mr. Hamilton?

Mr. Hamilton: I cannot say right offhand whether the formula specifically mentions the earnings, but he did have a method which he used, which we will call the "old formula." I am not sure whether it is written down there or not.

Mr. Hill:

Q. At any rate, there is no use going into that. My question included revenue, but as I understand you, your answer is as to expense: That is the fact you have considered?

A. Yes, sir.

Q. You think that the expenses assigned to a state under that formula are fairly accurate, do you?

A. Yes, I think they can be considered as fairly accurate.

Q. In your former examination at Little Rock, in answer to a question of Mr. Moore as to which of the various exhibits you put in you considered the most logical as the one representative of the actual business of the road in the state, you answered, as I remember, that it was Exhibit O, did you not?

A. Exhibit O.

Q. I wish you would explain why you thought that was the logical

exhibit of the various ones you have put in, showing the business of the railroad in Arkansas for the period in question?

1404 A. Because, in the first place, it reduces to a normal average the earnings and expenses of a four months' period, and in the second place, it applies the average of the expenses and earnings assigned to Arkansas under the old, or Douglas formula, to Arkansas. In other words, it reduces the exhibit to presenting figures of a normal average under the old formula.

Q. Did that exhibit contain the corrections of the assignment of expenses to Arkansas that you have developed in your Exhibits X and Y——

A. W and X.

Q. W and X, and the other exhibits that you have put in correcting what you have contended were errors of assignments in the exhibits put in by the Company?

A. It did not. The work of carrying these corrections through the figures would be considerable and the result upon the final average figures would be very small.

Q. In other words, if you reduce the test period to an average, that reduction to the average or to the normal takes care of any errors that may be in there, of itself?

A. Not quite takes care of them, but the effect of those errors upon the large amounts involved was considered to be so small as to be negligible.

Q. If you take an exhibit based upon the figures as corrected in your Exhibits W and X, and the other exhibits, and reduce that to the normal it will bring the same result, will it not?

1405 A. Approximately, yes, sir.

Q. You testified before that in regard to the forwarded and received basis for keeping the accounts of a company, that in your judgment the railroads were abandoning the forwarded and adopting the received basis?

A. Yes, sir.

Q. Have you any further data on that subject since you testified, if so, I wish you would put it into the record.

A. On September 10, I addressed a letter to the Interstate Commerce Commission giving them a list of thirty-two railroads, and requesting that they advise us as to the basis on which each of the roads computed their earnings.

On October 31, Fred W. Sweney, Chief Examiner of Accounts for the Interstate Commerce Commission, wrote us advising us as follows—I think the easiest way is to put the whole letter into the record.

Mr. Hill: Mr. Moore, just look at that letter, and then it can be copied into the record.

The letter last referred to is in the words and figures as follows, to-wit:

"(On letterhead of the Inter-state Commerce Commission.)

October 31, 1914.

Haskins & Sells, Certified Public Accountants, Third National Bank Building, St. Louis, Missouri.

GENTLEMEN: Replying further to your letter of September
1406 10, 1914, to Mr. Edward A. Moseley, formerly Secretary of the Commission, relative to the accounting by certain roads for freight revenue on a forwarded or received basis, which was referred to me:

An examination of the information filed in this office indicates a gradual change to the received basis, and also indicates that the roads mentioned in your letter of September 10th are accounting for freight revenue as follows:

Upon a forwarded basis:

Mobile & Ohio Railroad.
New York Central & Hudson River Railroad.

Upon a received basis:

Atchison, Topeka & Santa Fe Railway.
Atlantic Coast Line Railroad.
Baltimore & Ohio Railroad.
Central of Georgia Railway.
Chicago & Alton Railroad.
Chicago & Northwestern Railway.
Chicago, St. Paul, Minneapolis & Omaha Railway.
Chicago, Burlington & Quincy Railroad.
Chicago, Milwaukee & Puget Sound Railway.
Chicago, Milwaukee & St. Paul Railway.
Chicago, Rock Island & Pacific Railway.
Erie Railroad.
Illinois Central Railroad.
Kansas City Southern.
Lake Shore & Michigan Southern Railway.
Missouri, Kansas & Texas Railway.
Missouri Pacific Railway.
Pennsylvania Railroad.
Pittsburgh, Cincinnati, Chicago & St. Louis Railway.
St. Louis, Iron Mountain & Southern Railway.
St. Louis Southwestern Railway.
Southern Railway.

Local forwarded; other, except coal, received:

Central Railroad of New Jersey.

Local received; interline received 'received basis'; interline forwarded 'forwarded basis':

Southern Pacific Lines.

Local forwarded; interline received:

Cleveland, Cincinnati, Chicago & St. Louis Railway.
1407 Lehigh Valley Railroad.
Louisville & Nashville Railroad.
Michigan Central Railroad.

Yours very truly,

(Signed) FRED W. SWENEY,
*Chief Examiner of Accounts.*"

F. A. B.—R. B.

Mr. Hill:

Q. The roads that are mentioned in that letter are the roads you inquired about?

A. Yes, sir.

Q. Why did you select those particular roads?

A. They are the larger roads in the country, of which I would say the Frisco is another one, and we wanted to get roads of the same general size and character.

Q. They are mostly southwestern roads, are they not?

A. No, sir, all over the country. A good many of them are southwestern roads.

Q. Well, the letter will show for itself. That is all.

Cross-examination.

By Mr. Moore:

Q. On page 1194 of the record you stated in reference to your Exhibit A, that the railroad company's records disregard the fact that intrastate freight has received two terminal handlings. You have read the testimony of Mr. Hamilton to the effect that in dividing freight and passenger expenses as assigned under the formula, Exhibit No. 1, between intrastate and interstate, that each ton and each passenger has been charged in the Company's exhibits with every terminal handling which it got in the state of Arkansas.
1408 The number of these handlings is shown in the Company's Exhibit No. 6. That is correct, is it not?

A. I would like to know in what connection I was making that reply? Is it in connection with——

Q. I will give you the record. (Handing record to witness.) I just want to clear up a doubt. The question I want to ask in connection with that is, did you intend to question the correctness of Mr. Hamilton's statement?

A. I shall have to ask you to read Mr. Hamilton's statement again.

Q. I will repeat it to you.

A. If you please.

Q. You have read the testimony of Mr. Hamilton to the effect that in dividing freight and passenger expense, as assigned under the formula, Exhibit No. 1, between intrastate and interstate, that each ton and each passenger has been charged in the Company's

exhibits with every terminal handling which it got within the state of Arkansas.

A. I think that is true as to the division between intrastate and interstate.

Q. Does not your criticism to the effect that the Company's records disregard the fact that intrastate has received two terminal handlings apply only to the Company's method of assigning interstate revenue to the state of Arkansas?

Mr. Hill: Interstate or intrastate?

1409 Mr. Moore: Interstate.

A. Interstate includes trans-state, yes.

Q. And it does not apply to the units used by the Company in its division of terminal expenses between intrastate and interstate, does it?

A. It does not run to a division of expenses between intrastate and interstate.

My criticism, if I may be privileged to say so, was the unit basis on which revenue was allowed to states in which terminals exist to compensate for the terminal cost in those states.

Q. That means interstate revenue, as far as Arkansas is concerned?

A. Yes, sir. All of the revenue on intrastate business is assigned to Arkansas, so anything the rate may contain covering terminal expenses on intrastate business is assigned to Arkansas when the whole revenue is so assigned.

Q. The term "interstate" as we use it in all questions I shall ask you, includes also trans-state, unless the contrary is stated. You may assume that.

A. Yes, sir, all right.

Q. You said, as shown in your Exhibit A, that the cost per ton per terminal for freight handling in Arkansas, as developed by you from the Company's records, is 31.139 cents instead of 36.486 cents, or, rather, 36.404 cents, which is what the Company actually used, and that the cost of terminal handling per passenger per

1410 terminal is 5.443 cents instead of the figure 8.677 cents used by the Company, and that as a result of your revision of these terminal handling cost figures the Company in assigning interstate freight revenue to Arkansas should have used a mileage equivalent in freight service of 67 miles instead of 78 miles and in passenger service of 4¼ miles instead of 7 miles.

Then on pages 1195, 1196, 1197 and 1198 of the record you endeavored to show the effect of these changes, citing several examples.

A. Yes, I remember that.

Q. Now, take your first example, a shipment from Paris state line to Farlington, Kansas.

A. Yes, sir.

Q. All of the factors necessary for the computation are quoted by you in your testimony?

A. Yes, sir.

Q. Please refigure this matter and tell me what percentage of

total interstate revenue on this movement would be assigned to Arkansas by using your revised mileage allowance.

Mr. Hill: What kind of mileage?

Mr. Moore: Revised mileage.

A. Judge Moore, the item that you select has a mileage allowance for the Red River, which is assumed to have been a clerical error—to make the comparison right, I think I should again
1411 assume that there is a terminal at the Red River for which an allowance would be made. In that instance it would make no difference in the per cent. It is such a small fraction that it would make no difference.

Q. Take your second illustration, a movement from Long, Arkansas, to Paris state line: You say in the record that the Company's method assigns to Arkansas 59.03%——

A. 59%.

Q. Will you refigure this example from the record and state what your method would assign to Arkansas?

A. $49.90.

Q. I mean the percentages.

A. 57%.

Q. That assigns 2% less to Arkansas than the Company assigns, does it not?

A. Yes, sir.

Q. This indicates, does it not, that all of the differences resulting from this change in method would not be in favor of the Arkansas interstate traffic, but that in some cases a smaller proportion of the total revenue from interstate traffic would be assigned to Arkansas under your method as compared with the Company's?

A. It does not indicate quite that.

Q. What does it indicate, then?

A. On the interstate traffic where the short haul is it. Arkansas and the long haul is out of the state—the longer portion of the
1412 haul is out of the state—Arkansas would benefit. In instances where the reverse is true, where the longer portion of the haul is within the state and the shorter portion is out of the state, Arkansas would not benefit. It would be the reverse.

On trans-state business, where both terminals are outside of the state, Arkansas would get less than its proportion of the revenue.

Q. Take your third illustration, which is a movement from Johnson, Arkansas, to Sherman State Line: You state in the record that the Company's method assigns 43% of this interstate revenue to Arkansas.

A. Yes, sir.

Q. Please figure that from the record and see what allowance would be to Arkansas under your method.

A. 42%.

Q. Then your method would also in this instance assign less interstate revenue to Arkansas than the Company's method?

A. Yes, sir.

Q. Take your fourth illustration: There seems to be a very large

amount of money involved there amounting to $669,000 on business moving through Arkansas between Birmingham and Kansas City.

A. Yes, sir.

Q. You state in the record that the Company assigned 16%
1413 of this amount to Arkansas.

A. Yes, sir.

Q. Please refigure from the record what allowance would be made to Arkansas under your method and tell me what your method would assign to Arkansas? Just carry that out.

A. Carry it out further?

Q. Yes, say one decimal.

A. I want to figure the other one and carry it out one decimal, then, too.

Q. We have not used it with a decimal in our figures. I want to compare the result of your figures with our figures. Our figures are based on it without a decimal. It would not be fair——

A. It would be if both carried out——

Q. You have not stated yet what the per cent would be under your method.

A. 16.1%.

Q. If the Company used 16% flat and you use 16.1%, what would be the difference in per cent and amount?

A. $669.61.

Q. And what in per cent?

A. One-tenth of one per cent.

Q. So that is only $669 out of that large amount of business?

A. That is all.

1414 Q. You stated a moment ago in connection with another one of these instances that where the preponderance of the interstate train haul was outside of the state that Arkansas would suffer.

A. It is a gain where the short haul is in Arkansas.

Q. That is the same thing. In this case 140 miles of the haul is in Arkansas and 595 outside of the state, and on that basis the difference is only $669, so it is not very serious, is it?

A. That example does not produce a very large difference.

Q. Take your fifth illustration: A passenger movement from St. Louis to Paris, Texas: You said in the record that the Company's method assigns of interstate revenue 18% to Arkansas.

A. That was St. Louis to Paris?

Q. Yes. You said that the Company's method assigns of this interstate revenue 18% to Arkansas: What does your method assign?

A. The same thing. It is so long a haul that working on even per cents will assign the same percentage.

Q. What is the amount involved in that case?

A. $141,000.

Q. You would not make any change in that, then?

A. Not in working on even per cents, no sir.

Q. The Company worked on an even per cent, too.

A. Yes.

1415 Q. Take your sixth and last illustration, covering a passenger movement from St. Louis to Red River, destination Paris, Texas: You said in the record that the Company's method apportioned 19% of the revenue on this movement to Arkansas: What would your method apportion?

A. It is the same.

Q. What is the amount involved in that?

A. $140,126.87.

Q. So the two methods, yours and the Company's, would practically agree on that?

A. Disregarding fractions, yes, sir.

Q. What effect do these changes in interstate revenue for or against the State of Arkansas, and similar changes which might result from the application of your method instead of the Company's method, have upon the figures for intrastate revenue, freight and passenger, shown in the Company's exhibits?

A. None whatever. I did not attempt to figure intrastate.

Q. Then it has no effect upon the exhibits of the Railroad Company, has it?

A. Not as to intrastate and interstate, no, sir.

Q. In what way are they material to the questions involved in this litigation?

A. The 31 cent allowance on freight and the 5 cent allowance on passenger are merely computed from the basing data that the
1416 Company used, to show the error in the method. The 31 cents and the 5 cents are not correct factors as, I think, is demonstrated by applying those factors, plus the line charge for haul, to the Company's statistical records, which produces for all the lines north of the Red River a constructive expense for seven years which is in excess not only of the operating expenses attributable to passenger and freight traffic north of the Red River, but is greater than the operating expenses including the north Texas lines. In other words, the 31 cents was not intended to be considered as a correct terminal allowance of revenue, but was merely computed to illustrate the incorrectness of the method.

Q. You base your statement that it is not correct upon the facts that you have stated, that it would produce more revenue on the whole system than there really was produced—more expense, I mean?

A. The revenue allowance for terminal service is excessive.

Q. I understood you to say that, and I asked you if you based that upon the proposition that the application of that to the traffic units of the entire system would exceed the total expenses of the system.

A. That would depend upon the accuracy of the Company's statistician as to freight and passengers, and freight one mile and passengers one mile, but we see no reason to question that.

Q. Assuming they are correct then that is your opinion
1417 A. Yes, sir.

Q. And that is the reason why you make that statement that it is incorrect?

A Yes, sir.

Q. You are talking about your exhibits B, C, D and E, are you not?

A. Yes, sir.

Q. Your Exhibits B, C, D, and E?

A. Yes, sir.

Q. The question I asked you was if these changes in the interstate revenue, as illustrated by the examples you have given, do not affect the intrastate revenue, and in what way are they material to the questions involved in this litigation; I don't think you answered that question. The question is, what effect do these changes in the interstate revenue, as illustrated by the examples you have given, have upon the intrastate revenue in Arkansas?

A. None whatever.

Q. That is what I wanted to understand.

A. All the revenue on the intrastate shipments is assigned to Arkansas.

Q. Going now to your exhibit B, C, D and E: If I understand the scheme of those exhibits it is that you have applied, say, in Exhibit D, the terminal cost of 36.486 cents for freight and 8.677 cents for passenger, shown in the Company exhibits, which you multiplied by two, to what your exhibit says are the tons,
1418 ton miles, passengers and passenger miles of the Frisco system north of the Red River, plus the North Texas lines, and as a result of this you build up a constructive expense which you compare with the actual operating expenses of the railroad mileage covered: Am I correct in that?

A. Not quite, not in Exhibit B.

Q. I said D.

A. Exhibit D?

Q. Yes, Exhibit D.

A. Yes, using the Company's record of tons and passengers carried, and revenue freight miles and passenger miles, applying the Company's terminal cost of 36.486 cents per ton twice, once for each terminal, and the terminal cost per passenger, 8.677 cents, for each terminal, plus the line or haulage cost of .465 cents per ton per mile for freight and 1.242 cents per passenger per mile, applying those to the tonnage and passenger statistics shown produces a constructive expense which is not only greater than the expenses of the entire line including Texas—that is, it is greater than the entire line including Texas.

Q. What Texas lines?

A. What are known as the North Texas Lines, what the annual report shows.

1419 Q. Mr. Simson, take that exhibit and look at your figures for the year 1909, please. I hand you the 13th annual report of the Company to its stockholders, which covers the year ended June 30, 1909, which I have referred to in your exhibit: Look at page 75 of this report and tell me if you do not find upon that page a mileage of 5253.49 miles shown as the total of the St. Louis & San Francisco Railroad Company's lines?

A. Yes, sir.

Q. Now turn to page 34 of the same report: You will find a table of mileage and traffic expenses for the year ended June 30, 1909: What is the second item in that table?

A. Miles of road operated, June 30, 5235.49.

Q. Is it not 5253.49?

A. I should say 5253.49.

Q. That is the same mileage figure you quoted from page 75 of the same report, is it not?

A. Yes, sir.

Q. It is apparent, then, that the traffic statistics shown on page 34 of the report represent the traffic of the railroad mileage represented as a total of 5253.49 miles on page 75?

A. I should assume that would be true.

Q. Do you not find in this table on page 75, and included in the mileage I have quoted, the lines from Houston to Beaumont, Texas, and from Orange to Newton, Texas, designated respectively as the Beaumont Sour Lake and Western, and the Orange and Northwestern Railroads?

1420 A. Yes, sir.

Q. Do you understand that those are not part of the North Texas lines?

A. I think they have been considered as such in our work, yes, I know they have.

Q. Look at the next year's annual report and see if you find those roads included in the St. Louis & San Francisco lines.

A. They are not included in 1910.

Q. I want to state for your information, Mr. Simson, that in 1909, the auditor included those lines I mentioned, the Beaumont, Sour Lake & Western and the Orange and Northwestern in the Frisco lines. They were not part of the lines and were not included in the succeeding or any other year's report.

A. Yes, sir.

Q. And they are not part of the North Texas Lines.

A. Well, whether or not they are a part of the North Texas Lines the traffic statistics that we have worked on have covered the mileage in 1909, covered the full mileage as shown upon page 34.

Q. We will come to that presently. Now turn to page 34, the table of mileage and traffic statistics, in the 1909 report: What does the table show as the number of tons of revenue freight moved?

A. 16,326,727.

1421 Q. What does that table show as to the number of tons moved one mile of revenue freight?

A. 2,539,505,017.

Q. What does the table show as to the number of passengers carried?

A. 10,607,341.

Q. What does that table show as to the number of passengers carried one mile?

A. 469,461,724.

Q. It appears, then, does it not, that the table on page 34 of the

Company's annual report to its stockholders, for 1909, which you have just referred to, includes the traffic units of tons, passengers, ton miles and passenger miles of the Beaumont, Sour Lake & Western and the Orange & Northwestern Railroads?

A. Yes, sir.

Q. Compare the figures shown in that report, and which include the traffic units of the Beaumont, Sour Lake & Western and the Orange & Northwestern Railroads, with the figures shown in your Exhibit D, and also your Exhibit E, for the year 1909, and state if they are not the same?

A. The figures you are referring to are the tons of revenue freight and——

Q. Yes.

A. For 1909?

Q. Yes.

1422 A. It ought to be the same. (After examining figures) They are identical.

Q. See if it agrees with the table in the stockholders' annual report for that year which you read.

A. They agree.

Q. That is true as to Exhibit E, is it not?

A. Both D and E.

Q. It appears, then, that in the figures for 1909, in your Exhibits D, and E, you have included the tons, passengers, ton miles and passenger miles of the Beaumont, Sour Lake & Western and the Orange & Northwestern Railroads?

A. Yes, sir.

Q. Look at page 9 of that same report to the stockholders for the fiscal year 1909, and state what is shown to be the total operating expenses of the mileage covered by that report.

A. It does not give the mileage, as far as I can see, on this page.

Q. Let me have the report and I will have it pointed out for you. I should have said page 14 will give you the mileage.

A. 5251.06. That is the average mileage. That is the only mileage shown on page 14. The average mileage also shown on page 34, miles of road operated June 30, 1909, is 5251.06.

Q. What are the total operating expenses shown in that?

1423 A. $25,164,014.40.

Q. Is not that the operating expense of the mileage which includes the Beaumont, Sour Lake & Western and the Orange & Northwestern Railroads?

A. Undoubtedly.

Q. And the same traffic units you covered awhile ago in your former answer?

A. Yes, sir.

Q. Read me from your Exhibits D and E the actual expenses of the Frisco proper, plus the North Texas Lines, as per the Company's records which you have set up in those exhibits.

A. $24,760,091.15.

Q. Is it not a fact that in your Exhibit for all the years represented you have included for comparative purposes the operating

expenses of the Frisco proper, plus the North Texas Lines, and only such operating expenses, whereas, in building up the constructive operating expenses for 1909, you have included tons, passengers, ton miles and passenger miles of railroads on the Gulf Coast, whose operating expenses are not included in the figures you used or in the exhibits put in by the Railroad?

A. I don't know what the difference represents, but we have not shown by about $400,000 the expense per Company's record to cover the same territory that the constructive expenses were computed for.

1424 Q. Will you take time before you get off the stand and see if you can answer that question?

A. I don't believe I can get it from this record, I don't know.

Q. Wherever you have to go to get it, I would like you to figure it up so you can answer it, say tomorrow morning, or sometime.

A. What that difference constitutes?

Q. Yes.

A. Yes, if I can see what the difference represents I will answer the question. I will ask for the question again.

(Previous question read.)

A. I think very likely I have.

Q. I want to know definitely about that.

A. I cannot get it except by going to the Company's records. They are not in this.

Q. Will you do that and answer this question tomorrow morning?

A. I will have that done. Let me get a memorandum of it.

(Here ensued colloquy.)

I am satisfied that the ton miles for 1909 include the Beaumont, Sour Lake & Western and the Orange & Northwestern. The mileage indicates that.

Q. And the expenses do not?

A. That I want to see; I don't know what that difference

1425 consists of.

Q. Find out as soon as you can. I would rather wait.

A. I am willing to assume that is right without checking it. It does not change the force of the example. It is still a very material excess.

Q. Then, as I understand, it is a fact that for the purpose of comparison, only the operating expenses of the Frisco proper, plus the North Texas lines, were used, while in building up the constructive operating expenses for 1909, you included tons, passengers, passenger miles and ton miles of the railroads of the Gulf Coast, whose operating expenses are not included in the figures you used nor in the exhibit put in by the Railroad Company?

A. Yes, and the difference between the figures including the Company's operating expenses, including the Beaumont, Sour Lake & Western and the Orange & Northwestern, amounts to only $403,923.25. That is the difference between the amount of operating expenses as shown in the annual report, $25,164,014.40, and the

amount as shown by Exhibits D and E, $24,760,091.15; the excess of total cost of handling traffic, as computed, over the total operating expenses, making this adjustment still remaining at some $5,343,000, in round numbers.

Q. What exhibit is that on?

A. Exhibits D and E. On Exhibit D, after making that adjustment, the excess of the constructive cost would be $7,776,000,
1426 in round numbers.

Mr. Hill:

Q. After making the adjustment?

A. Yes, sir.

Mr. Moore:

Q. In your Exhibit C you have a cost per ton per terminal on freight of 31.139 cents. This cost is arrived at by dividing by the number of ton terminal handlings the total freight terminal expenses set up by the Company for Arkansas, as per Exhibit 11, amounting to $137,221.43: Check that, and see if it is correct.

A. Terminal freight expenses, Exhibit No. 11, $137,221.43.

Q. That is where you got that cost, is it not?

A. Yes, sir.

Q. This total freight terminal cost in Arkansas of $137,221.43, was the amount of expense incurred as the result of the number of handlings given to the freight traffic in that state during the test period, as is shown——

A. That is what the exhibits so designate after the computations provided for by the formula.

Q. It is shown in the Company's exhibit that the average haul of one ton of intrastate freight in Arkansas was, during the test period, 25.75 miles, and that the average haul of one ton of interstate freight in Arkansas was 76.20 miles, was it not?

A. I remember one of them, I have forgotten the other one. I think that is about right.

1427 Q. Do you know it well enough to answer?

A. Yes, I think so.

Mr. Hill: That is about right.

Mr. Moore:

Q. Assuming the average haul of all freight in Arkansas, both state and interstate, during a given period, was 70.94 miles, and assuming further that the average haul of freight upon the entire Frisco mileage covered by your exhibits B, C, D and E, during the same period was 158.13 miles: Is it not a fact that the Company, in hauling a ton of freight within the state of Arkansas, on the hypothesis set forth in your exhibits, an average distance of 70.94 miles would incur more than twice as many terminal handling expenses per ton moved as it did in transporting a ton of freight 158.13 miles, if that was the average haul upon the entire railroad in the same period?

A. I don't know, I never computed it.

Q. What do you think about it?

A. Well, it is the sort of a question I would want to sit down and think about. I don't like to answer it offhand.

Q. I will add this: In answering the question you may assume the same operating conditions outside of Arkansas to exist within the state of Arkansas.

A. Then what?

Q. Then does it not resolve itself into a question of mathematics, and does it not establish the proposition that there are more than twice as many terminal handlings per ton moved in the
1428 158.13 miles as in the 70.94 miles?

A. I don't see it.

Q. I will read the question again, perhaps I have it confused: Assuming that, is it not a fact that the Company in hauling a ton of freight within the state of Arkansas, on the hypothesis set forth in your exhibits, an average distance of 70.94 miles, would incur more than twice as many terminal handling expenses per ton moved as it did in transporting a ton of freight 158.13 miles, if that was the average haul upon the entire railroad in the same period, assuming the operating conditions were the same in both states, we will say.

A. The factor was not computed on that basis, it was computed on the basis of an expense per ton at the originating and the delivering station, either for freight or passenger. It was computed and used, I believe, solely in attempting to make a revenue allowance to the states in which terminals existed.

Q. Was it not computed on the basis of the number of handlings?

A. No. The Company in making its computation which resulted in the 36 cent terminal cost per ton counted only the tons of intrastate freight which they computed as moving, disregarding the fact that they used two terminals, and the tons of interstate freight that moved on which some part of the movement was in Arkansas.
1429 They computed a cost per ton, but when they applied it as a basis of a revenue allowance to the state in which terminals existed they used that factor as if it were a rate per ton per terminal and per passenger per terminal.

Q. What does your 31 cents stand for, then?

A. The 31 cents stands for a correction in method, not necessarily a correction in figures.

Q. Then why do you multiply by two to get the cost per ton?

A. There are two terminals for each ton handled, according to the definition of terminals as contained in Exhibit No. 1.

Q. That is just what I meant in the hypothetical question I asked you, where the distance between the terminals is more than double——

A. When you ask me a long hypothetical question I want to study it in advance, I don't want to answer it offhand.

Q. Take the proposition you made, then, doubling your cost of terminal handling in order to attach to each ton two handlings, and those handlings, of course, occur at the beginning and at the end of the haul.

A. Yes, sir.

Q. Here is the point: You double it every seventy miles in the one case: When you go out of a state and encounter a haul of 158.13 miles, what do you do?

A. The length of the haul has nothing to do with it.

Q. Do you not double it for every 158 miles?

1430 A. No, sir. The Company hauled——

Q. You stated a while ago you doubled it so as to get the two terminal handlings?

A. Yes, sir.

Q. You did that on each haul?

A. On each ton hauled, yes, sir.

Q. You doubled it for the purpose of getting the results of handling at each end of the haul?

A. At both ends of the haul.

Q. If one haul is 70 miles long that gives you two terminal handlings?

A. Yes, sir.

Q. If another haul is 158 miles long how many terminal handlings does that give you?

A. Two, just the same.

Q. Two?

A. Just the same.

Q. To make my illustration which I just put a little plainer, assume a terminal handling costs 30 cents per ton at each end of the journey of a ton which travels 30 miles. You have then a total terminal cost of 30 plus 30, or 60 cents, and the burden per ton mile on a ton carried 30 miles is 2 cents per ton mile.

Assume another ton moving 60 miles and incurring, as in the first instance, 60 cents total terminal cost, the burden per ton mile on the 60 mile haul is 1 cent per ton mile: That is correct?

1431 A. Yes, sir.

Q. Assume a third ton moving 120 miles, incurring the same terminal burden of 60 cents—30 cents at each end of the journey—the burden per ton mile on the 120 mile haul becomes one-half cent per ton mile: Is that correct?

A. On that basis of computation, yes.

Q. The average terminal handling figure of 36 or 31 in the state of Arkansas is based upon the business handled in the state, which, for state freight, is 25 miles and for interstate freight is 75 miles: If the average cost of terminal handling was based upon the cost of handling traffic with an average haul of 158 miles, this terminal unit would be much less, would it not?

A. Possibly; not necessarily.

Q. Would it be mathematically?

A. I don't know, I never figured it.

Q. Upon what length of haul did you base it?

A. I never paid any attention to the length of haul; it was not necessary to. Exhibit 4, which provides for a revenue allowance of mileage in apportioning revenue to take care of the expenses in terminals, states that Arkansas is closely reflective of the entire line.

When the mileage allowance is made on trans-state freight the mileage allowance is made for two terminals, both outside of the state.

When the mileage allowance for interstate freight is made,
1432 78 miles is added to the mileage within the state and 78 miles to the mileage without the state. They might have done the same thing with intrastate shipments, but that was not necessary, as it would still result in all of the earnings on intrastate freight being assigned to Arkansas.

Now, in order to use a proper factor to add this mileage to each terminal the factor should be a rate of expense per ton per terminal. As it is computed, if the terminal expenses are correctly computed, it would, in the first place, result in an expense per ton, not per ton per terminal. In other words, they have computed their factor one way and applied it another.

Q. I understand that and they applied it in this way: If the haul was 25 miles in length they spread it over that 25 miles so as to charge it to ton mileage, did they not?

A. When the revenue is apportioned, if there is an added mileage to compensate for terminals, it results in an apportionment of it, yes.

Q. Is not your answer that——

A. I answered your question as to the 25 mile haul and the 75 mile haul, that no account whatever is taken as to the mileage the ton was hauled. Each ton had two terminals, one its originating point, and one at its destination, irrespective of whether it was a long or a short haul, an interstate or a trans-state shipment.

Q. Is it not a fact that the terminal cost per ton increases
1433 as the length of haul decreases?

A. I can see no reason for a terminal cost increasing or decreasing on account of haul.

Q. If the average haul of all freight hauled by the Frisco system was only 25 or 75 miles, the operating expenses of the system would have been much greater, would they not?

A. Possibly. I don't know. That is theoretical. The short haul freight is usually expected to cost more than the long haul and through haul.

Q. Let me ask you my question again: You have a total terminal cost of 30 cents plus 30 cents, or 60 cents, and the burden per ton mile on a ton carried 30 miles is two cents per ton mile.

Assume another ton moving 60 miles and incurring, as in the first instance, 60 cents total terminal cost, the burden per ton mile on the 60 mile haul is 1 cent per mile.

Assume a third ton moving 120 miles and incurring the same terminal burden of 60 cents, 30 cents at each end of the journey, the burden per ton mile on the 120 mile — becomes one-half cent per ton mile: You stated that was correct?

A. That is mathematically correct, yes.

Q. If it is a fact that the ton figures, freight and passenger, which appear in your exhibits D and E, include a duplication of all
1434 the tons and passengers crossing the Red River on the Frisco System of rails, would not the process you have employed of

multiplying the cost per ton and per passenger per terminal by two, be erroneous to the extent that these tons and passengers are duplicated in Exhibits D and E?

A. You will have to put that again. You have your premise too far away from your question.

(Previous question read.)

A. No, sir; D and E ignore the fact that on through billed freight there is any terminal at the Red River. It includes the Texas lines as if the Frisco System, including the Texas lines, were one company.

Q. From what source did you get the ton and the passenger figures used in Exhibits D and E?

A. From the annual reports.

Q. Which annual reports?

A. The Company's annual reports to the stockholders.

Q. You say you got the figures included in the exhibits referred to from the stockholders' reports: If it is true that the auditor of the Frisco, north of the Red River, and the auditor of the North Texas Lines both included in their traffic statistics the tons and passengers which they interchange across Red River, and both sets of statistics are simply added together to obtain the total ton and passenger figures which appear in the stockholders' reports, and your Exhibits
1435 D and E, so far as tons and passengers are concerned, are built on the stockholders' reports, then there is a duplication that I asked you about, is there not?

A. If the statistics for the North Texas Lines, as shown in the annual report, contain a duplication, then there is a duplication in these figures, of course. I have relied upon the Company's figures being correct on that point. They are wrong to that extent, of course.

Q. From your answer to question propounded to you by Judge Hill at page 1235 of the record it would appear that you were under the impression that the value of the property assigned to the state of Arkansas is affected by the transportation expenses. Is that your understanding?

A. Not entirely.

Q. In what way?

A. It is Exhibit 18, I think, where the transportation expenses are used for some of the subdivisions.

Q. I am talking about assigning property to the state of Arkansas.

A. I don't think that is true of the state of Arkansas.

Q. That was the question.

A. I think I misunderstood the question.

(Previous question read.)

A. My remembrance of that now is that the transportation expenses basis is used for some of the subdivisions after the property is assigned to Arkansas.

Q. On pages 1235, 1236 and 1237, you state that the
1436 process of equation employed by the Company in its exhibits to put the results of the company's old formula of prior years on basis of the new formula, Exhibit No. 1, having been made upon

the five general groups of expenses prescribed by the Interstate Commerce Commission, brought a different result than you obtained by making this equation by each individual Interstate Commerce Account, and that this resulted in charging $7,397.00 more to total Arkansas expenses in the four months of 1907 than would have been charged had your method been followed.

Did you consider the adjustment of the company material costs between the freight and passenger service, which is made in the Company's Exhibit No. 10, in arriving at your figures?

A. No, sir. That is, the first division; the first assignment to Arkansas.

Q. You did not make any attempt to equate the charges in the individual Interstate Commerce Accounts, treating the freight and passenger proportions, separately, did you?

A. I did not, no, sir.

Q. Do you know what the effect of making this equation of the freight and passenger expenses separately would have been, giving consideration also to the adjustment of Company material costs made by the Company in its exhibits?

A. No, sir, I did not compute it.

Q. You did not attempt, then, to work this matter out in
1437 accordance with the spirit of the formula filed as Exhibit No. 1?

A. No, sir.

Q. As I understand the theory upon which your Exhibits H and I are prepared and their results reflected in Exhibit J, you have shown in Exhibit H the earnings of the entire Frisco Lines north of the Red River for several years, and have set up the earnings of the Frisco line north of Red River for the four months ended December 31st, in each of the fiscal years represented, and have derived therefrom a per cent of 36.34 which you say reflects the normal proportion which earnings of these four months would be of a year's earnings, represented by an average of these five years, and you have in setting up the amount which you say represents a normal four months' earnings in Exhibit J, applied this percentage of 36.34 to the actual earnings of the Frisco lines north of Red River for the year ended June 30, 1908: Was not that your plan?

A. That was the plan.

Q. As I understand what you say about your exhibit, you have followed the same plan in getting at your percentages of expenses in Exhibit H: Is not that correct?

A. Yes, sir.

Q. From what source did you obtain the figures used in making this Exhibit H as to earnings and expenses?

A. The Company's books.

1438 Q. From what records were these figures obtained?

A. The ledgers, undoubtedly.

Q. The officers of the Company gave you access to all records you asked for in this connection, did they not?

A. Yes.

Q. Are the figures shown in your Exhibit H a correct statement

of the earnings and expenses of the Frisco Lines north of Red River?

A. Yes, they are.

Q. I hand you the Company's sworn report to the Interstate Commerce Commission covering all of the lines of the Frisco north of the Red River for the fiscal year ended June 30, 1908. Please turn to page 45 and say if the total earnings of $33,905,028.64 appearing as the first item in your Exhibit H agree with the figures shown in the report before you.

A. No, sir, they do not agree.

Q. Turn to page 65 of the same report——

A. Wait a moment. Pardon me, but the total operating revenues do agree.

Q. With your Exhibit H?

A. Yes, $33,905,028.64.

Q. Now turn to page 65 of the same report and say what the total expenses of maintenance of way and structures shown therein are. What does the book show there?

A. The report shows $4,459,452.56.

1439 Q. What does your Exhibit H say these maintenance of way expenses for 1908 were?

A. $4,822,333.31.

Q. What is the difference?

A. The difference is about $360,000.

Q. Do you question, Mr. Simson, the agreement of the Company's sworn annual report to the Interstate Commerce Commission with its general ledgers, where you say you got your figures?

A. No, but I would want to know what the difference consists of before I would say much about it.

Q. You mean you want to stop now?

A. I don't know that I have the data here.

Q. Don't you know that your exhibit includes the earnings of the Frisco Lines north of Red River only (which are the earnings reflected in the Company's exhibits in this case), and that your expense figures in this Exhibit include the expenses of some five hundred miles of railroad in Texas known as the North Texas Lines, the earnings of which lines are not reflected in your Exhibit?

A. I don't know it, if it is so.

Q. Haven't you before you the sworn report made by the Company to the Interstate Commerce Commission?

A. Yes.

Q. And that shows the same earnings figure as your exhibit?

A. Yes.

1440 Q. And shows a different expense figure?

A. Yes.

Q. I hand you the Company's sworn annual report to the Interstate Commerce Commission for the fiscal year ended June 30, 1910, covering Frisco Lines north of the Red River: Please refer to page 45 and say whether or not the earnings figures shown there are in agreement with your Exhibit H.

A. They are.

Q. Now turn to page 65 of the same report and tell me whether the operating expense figures shown in your Exhibit H also agree with the Company's report to the Interstate Commerce Commission for lines north of Red River.

A. They do not.

Q. What is the difference?

A. $238,000.

Q. Give me the amount of the difference in each of the five blocks of expenses between the report of the Interstate Commerce Commission and Exhibit H.

A. In round figures?

Q. Yes, that will answer, I suppose, but I want each block.

A. The first one is practically $338,000 on maintenance of way and structures.

The second one, maintenance of equipment, the difference is $288,000.

The third one is traffic expenses, and the difference is $72,000.

1441 Transportation expenses is $994,000.

The general expenses, $99,000.

Q. Are those differences between your exhibits and the Company's report to the Interstate Commerce Commission for that year?

A. Yes, sir, they are.

Q. Do you know what creates those differences in your expense figures?

A. I do not, no, sir.

Q. Will you check up that also so as to be prepared to state tomorrow morning.

A. If I can get the information, I shall certainly do so.

Q. Report to us as soon as you can.

A. Surely.

Q. I hand you a spread of expenses upon which the General Auditor of the Frisco assembles, for purpose of his annual stockholders' report, the earnings and expense of the Frisco lines north of Red River, and those of all of its allied and subsidiary lines in Texas:

Please look at that sheet and see if you can tell me how all these errors crept into your Exhibit H.

A. I cannot harmonize them from these figures without having some more figures.

From these sheets it is apparent that the expenses of the North Texas Lines have been included, which will, of course, destroy the figures right straight through.

1442 Q. Is it not a fact that your Exhibit H, in the column for the entire fiscal year, contains the earnings of the line north of Red River alone, and the expenses for the lines north of the Red River plus the North Texas Lines, or about 500 additional miles?

A. Apparently from these sheets that is true. I will have it checked up by tomorrow morning and verified.

Q. Haven't you made the same error as to earnings and expense figures in all of the other periods, so far as the total fiscal year figures are concerned?

A. I have checked but one year, but I will find that out between now and tomorrow morning.

Q. Will you ascertain and report at the same time tomorrow, if you have not made the same mistake in all of the exhibits of that line of exhibits?

A. Yes, I will.

Q. And your four months' figures, you will examine them also?

A. I think we will probably have to get your records for that. May we get at them between now and tomorrow morning?

Q. Yes, they are right there (indicating).

A. We can use those sheets?

Q. Yes.

Mr. Simson, isn't it true that in all the figures in Exhibit H you have taken in the earnings north of the Red River alone, and the expenses of the lines including the North Texas Lines?

1443 A. I would rather answer that tomorrow morning, after I have had a chance to check up.

Q. I am not asking you to do that now, but will you do it?

A. Certainly, of course.

Q. And isn't it true that in the four months of 1909, you have also taken in the South Texas Lines, the St. Louis, San Francisco & Texas Railway; Fort Worth & Rio Grande; the Beaumont, Sour Lake & Western, the Orange & Northwestern?

A. That again I will have to defer my answer in order to check them up.

Q. I understand, but I want to call your attention to these matters now.

A. Yes, sir.

Q. I wish you would ascertain and check up and let us know tomorrow morning, if you have taken in, in the expenses, the Texas lines to which I called your attention, covering about 5,300 miles; while the earnings figured by you have covered only about 4,700 odd miles: Will you ascertain that and report at the same time?

A. Yes, sir.

Q. You know, don't you, Mr. Simson, that these Texas Lines are separately operated and distinct properties, in accordance with the Texas laws, and that their earnings and expenses only appear on the spread sheets of the Auditor of the Frisco proper for the

1444 purpose of preparing a stockholders' annual report covering the auxiliary lines as well as the Frisco proper?

A. I presume they are for some such purpose, yes.

Q. When you report tomorrow I wish you would also report from what source your original figures were drawn.

A. I would like to go to the books,—I suppose we can have access to them.

Q. Please turn to Exhibit I and compare it with the figures which are carried both in it and Exhibit H, and state if so far as the first column of figures is concerned, headed "Entire Line", they are

not the same erroneous figures which you have placed in Exhibit H, insofar as the full fiscal years 1910, 1911, 1912 and 1913 are concerned?

A. They are identical.

Q. While you are making your check, look up and tell me if the earnings and expense figures for the four months ended December 31, 1907, which appear in the first column of your Exhibit I, do not also contain the same error as in your Exhibit H?

A. I would much rather answer that tomorrow.

Q. That is what I said. Check it up and tell me later, please.

A. Yes.

Q. Now take the second column in Exhibit I; that represents the earnings and expense figures assigned to Arkansas under
1445 the Company's new formula, and your Exhibit I shows they were drawn from the Company's Exhibits.

A. Yes, sir.

Q. You have had an opportunity to examine the Company's exhibits and you know, do you not, that these earnings and expenses assigned to Arkansas are the proportion assignable to Arkansas, under the Company's formula, Exhibit No. 1, of the earnings and expenses of the lines north of the Red River alone?

A. That is the way I understand it.

Q. Verify that if there is any doubt in your mind.

A. There is not any doubt in my mind.

Q. Please turn to your Exhibit J: Inasmuch as it is based on the percentages which you obtained on the erroneous figures in Exhibits H and I, your Exhibit J is itself in error and does not reflect the facts, even on the theory upon which you have prepared it.

A. That is right. If there is an error in the one it is carried through the others.

Q. Take your Exhibit K, which shows on its face that it is based upon your Exhibits H and I: Isn't the same true of that exhibit? That it reflects the same errors as shown in the other exhibits?

A. Yes, sir, the same. If there is an error in the base the error is carried through the others.

Q. Now take your Exhibit L: This exhibit differs from Exhibit H only in that the percentages obtained in it are based
1446 upon a six years' average of earnings and expenses, the fiscal year 1914 and the four months ended December 31st, 1913, being included in Exhibit L with exactly the same figures that appear for the five years in Exhibit H. The same thing is true of that exhibit?

A. Yes, sir, exactly the same is true.

Q. Please check that up and see if the 1914 figures are not also in error.

A. Yes, sir, I will do that. If one is wrong they are all wrong.

Q. Now will you also check up the four months' period for each of the years which appear in your Exhibit L?

A. Of course we will have to do that.

Q. Don't they follow your Exhibits H and I?

A. "L" follows them except there is another year added.

Q. What I want to get at is this: If Exhibits H and I are in error Exhibit L is also in error, is it not?

A. Yes, sir.

Q. You have then included in Exhibit L for all the periods the earnings of 4,700 miles of railroads and the expenses in some of the periods for 5,200 miles of railroad; and in the 1909 period the expenses of about 5,300 miles of railroad.

A. I want to check that up and find out.

Q. You will check that up also? so as to be able to answer the question?

A. I will.

1447 Q. Take Exhibit M: This shows upon its face, does it not, that it is based upon the erroneous percentages which you obtained in Exhibits H and L, and, therefore, is affected by the same errors are are contained in those exhibits?

A. Yes, sir. If there is an error in them there is also an error in this exhibit.

Q. Take your Exhibit N and tell me if the figures appearing in the first column of this Exhibit are not a duplication of the erroneous figures appearing in the first column of Exhibit H, where you have the earnings of one mileage and the expenses of another mileage, insofar as they refer to the full fiscal years, and if they are not the same erroneous figures for the last four months of 1907 as appear in your Exhibit H?

A. They are the same figures in the entire line that appear in Exhibit H. If the figures in Exhibit H are wrong the figures in Exhibit N will necessarily be wrong.

Q. And how about the last four months of 1907

A. The same thing would be true. If they are wrong in one place they would be wrong in another place, as we used the same figures, of course.

Q. In the second column of Exhibit N you quote from the Company's Exhibits the earnings and expenses of these various periods assigned under the old formula, do you not?

A. Yes, sir.

Q. Is it not a fact, and do not the Company's Exhibits show, that these earnings and expenses are both the proportion

1448 assigned to Arkansas under the old formula of the earnings and expenses of the lines north of the Red River alone?

A. Yes, I presume that is true.

Q. Take your Exhibit O, which shows upon its face that it is based upon the percentages obtained in Exhibits H and N: This exhibit then inherits all of the errors which we have developed in Exhibits H and N, does it not?

A. Yes, sir.

Q. Take your Exhibit P: This exhibit shows upon its face that it is based upon the figures and percentages carried in your erroneous Exhibits H and N, does it not?

A. Yes, if they are in error there, they are in error here.

Q. That Exhibit P, therefore, inherits all of the errors that have been developed in your Exhibits H and N, does it not?

A. Yes, sir, if they are in error there, they are in error here, too.

Q. You will be prepared to answer all of these questions definitely when you return here?

A. As soon as I get the information, yes.

Q. In your direct examination you testified that in your opinion Exhibit O would come nearest to reflecting the actual conditions on the Frisco Railroad in the State of Arkansas, and this Exhibit shows that the return upon one-third of the value of the
1449 property was 7.55%. This does not take into consideration the errors appearing upon the exhibits upon which that exhibit is based. Exhibit O is intended to cover all classes of business: That is true, is it not?

A. What?

Q. It is true that it does not take into consideration the errors contained in the exhibits upon which it is based?

A. It is based upon Exhibits H and N; and if those are incorrect this is incorrect.

Q. And that Exhibit O is intended to cover all classes of business?

A. Yes, state and interstate.

Q. We want you, then, to check all the exhibits from H to P, inclusive.

A. Yes, I will do it.

Q. Why was no separation made between the freight and passenger traffic, or between the state and interstate traffic, in your Exhibit O?

A. I did not think the question of separation was a necessary one to answer.

Q. You mean my question?

A. No, sir, I mean the question of separation. I mean that the separation was not a question. I did not attempt to answer it. I did not think it was necessary.

Q. Inasmuch as this litigation affects state rates and not interstate rates, is not the division material?

A. It would be if the case came within what I understand to be the Minneapolis and St. Louis Railroad class. I did not
1450 think it did.

Q. Why not?

A. Because I thought a recovery upon all the business of the state would provide a sufficient return upon the property.

Q. You, then, acted upon the view that if there was a sufficient return upon the total business, state and interstate, the fact that there might be an insufficient return upon the intrastate alone would not entitle the railroad to the relief they are seeking to obtain in this case?

A. That is the way I understand that decision.

Q. If the earnings and expenses shown in Exhibit O, based upon the average per cents covering the period of four months ended December 31st, 1907, (after corrected) were divided between the freight and passenger traffic, the return upon that portion o

the property employed in the passenger service would be much less than 7.55%, would it not?

A. I would not undertake to say.

Q. What is your view about it?

A. I have not any view.

Q. I ask you as an expert accountant, familiar with railroad accounts, if the operating ratio in the passenger service is not much larger than it is in the freight service?

A. That carries with it the necessity of a formula which will accurately divide freight and passenger expenses. I have
1451 never seen a formula with all the evils eliminated, or that would answer all the questions connected with that.

Q. I am not speaking about accounts now, or any separation. The question I asked you is without any reference to the method of dividing, whether, as an accountant you do not know that the operating ratio in the passenger service is not much larger than it is in the freight service?

A. It is the general impression that that is true. I do not know. I have prepared no figures on that subject.

Q. Have you not been a student of railroad accounts?

A. Yes, sir.

Q. And your firm, Haskins & Sells, is engaged in that business, is it not?

A. We do a great deal of railroad work.

Q. Basing your answer, then, upon that experience, did not your firm submit figures in the Iron Mountain Case, showing the difference between expenses as between freight and passenger?

A. I believe so. I had nothing to do with that myself.

Q. Don't you know, as a part of your experience as a student of railroad accounts, and as an accountant, that it is understood and conceded that the operating ratio in the passenger service is larger than it is in the freight service?

A. It is the general impression that that is true.

Q. Don't you know the Interstate Commerce Commission also held so in a recent decision by it?

1452 A. Yes, I believe they said so—to that effect, at least.

Q. Now, if these figures in your Exhibit O were further subdivided between the intrastate freight and the intrastate passenger service, would not the net return upon the total intrastate business be much less than 7%?

A. I would not want to state what it would be.

Q. I did not ask you to state what it would be, but wouldn't it be much less?

A. I would not state whether it would be more or less.

Q. Don't you admit in your exhibits that the intrastate traffic has two terminals as against interstate traffic one terminal?

A. In Arkansas, yes.

Q. Would not that in itself establish it?

A. No, sir.

Q. That there is a greater expense?

A. But they get all the revenue, to compensate for it.

Q. We are not talking about revenue, but we are talking about expenses.

Mr. Hill: You are talking about return. You asked him about the 7%, and that means net.

Mr. Moore:

Q. It is shown that the larger proportion of intrastate freight moves on local trains and it is conceded, I believe, that they are the more expensive trains. Would not that increase the expense of intrastate traffic as compared with interstate?

1453 A. Possibly so. I have not prepared any data on it.

Q. Can you express an opinion on it?

A. I don't like to express an opinion without I have something to base it upon.

Q. Would not this return of 7% upon all intrastate traffic be much smaller than the average return upon all classes of traffic by reason of the fact that, first, the passenger service is less remunerative than the freight service; and second, because of the fact that the intrastate passenger business is a much larger per cent of the total intrastate business than the intrastate freight traffic?

A. I don't know.

Q. If this separation had been made upon the basis I have outlined, the results obtained would be upon the supposition that the cost of handling intrastate freight traffic would be no greater per unit than the cost of handling all traffic combined, making no allowance for any extra cost of handling the intrastate traffic?

A. I don't know about that. I would have to figure it out and I have not any data upon which to figure it.

Q. As a matter of fact, Mr. Simson, in view of your investigation in this case, are you not of the opinion that the earnings from the entire passenger business of the Frisco Railroad in the state of Arkansas do not afford reasonable compensation for the service rendered?

A. That is a matter of opinion which I do not care to express.

1454 Q. Have you ever made any investigation in regard to it?

A. I have not any basis for saying whether they do or whether they do not. I have not made any separate computation for freight and passenger business, state and interstate, in the state of Arkansas.

Q. If that is the case, how do you argue that the total earnings from all classes of business would afford reasonable compensation for the intrastate business?

A. I am assuming it afforded a reasonable compensation for all the business in the state.

At this point adjournment was had until Wednesday, November 11, 1914, at 1:30 o'clock P. M.

1455 ST. LOUIS, November 11, 1914.

No proceedings were had on Wednesday, November 11, 1914, and an adjournment was taken to Thursday, November 12, 1914, at ten o'clock in the forenoon.

ST. LOUIS, November 12, 1914.

Met pursuant to adjournment as above on Thursday, November 12, 1914, at ten o'clock in the forenoon.

The following proceedings were had:

Cross-examination of Mr. Simson resumed.

By Mr. Moore:

Q. On pages 1467-8-9-70-71 and 1472, I called your attention to your Exhibit D and also to your Exhibit E, and asked you if you had not included under the year 1909 in that exhibit the traffic units—tons, passengers, ton miles, and passenger miles—of two subsidiary railroads in South Texas, namely: the Beaumont, Sour Lake & Western and the Orange & Northwestern. You have had time to investigate that matter. Please say if you do not find that is a fact.

A. It is a fact that the traffic statistics include the Beaumont, Sour Lake & Western and the Orange & Northwestern.

Q. In these same exhibits, under the year 1909, you have included the expenses of the Frisco proper plus the North Texas Lines only, and with that figure you have contrasted the constructive expense you have built up on the traffic units, including those
1456 of railroads which are not included in the expense figures. Isn't that a fact?

A. That is right.

Q. You state on page 1473 of the record that you were not willing to assume this. Have you now satisfied yourself that these errors I have pointed out exist in your exhibits D and E?

A. I am satisfied that in those exhibits the 1909 figures were not included and the traffic statistics were.

Q. On page 1473 of the record, referring to the erroneous figures for the year 1909, you stated in your Exhibit E that this would only reduce the figure which your exhibit calls "excess of total costs as computed 'Total Expenses' by $403,923.25," did you not?

A. Yes, sir.

Q. Those were the expenses which you failed to take into your exhibit as per the Company's records, and represent the expenses of the Beaumont, Sour Lake & Western and the Orange & Northwestern for the year 1909, do they not?

A. Yes.

Q. Don't you think, then, Mr. Simson, that your statement on page 1473 of the record, as to the effect these errors in 1909 had on your exhibit is in error? Should you not, in order to make the 1909 figures comparable with the balance of the exhibit, have cut down the traffic units from your erroneous figure to the proper
1457 basis, and allowed the expense figures as per the Company's records, as you put it, to stand for purposes of comparison?

A. It would be preferable to do so.

Q. In other words, in your correction suggested on page 1473 of the record, you were insisting upon dragging into your 1909 portion of your exhibit two South Texas lines, which do not figure in your exhibit in any other year. Isn't that true?

A. That is true.

Q. To sum up the whole matter concerning the errors in these Exhibits D and E, the 1909 results which you show in the exhibits are entirely wrong because the traffic factors—tons, passengers, ton miles and passenger miles—you show are those of railroads whose expenses are not reflected by you in your exhibits. You are convinced now, are you not, after further examination of the Company's records, that that is a fact?

A. 1909 covers a broader field than any of the other exhibits.

Q. On pages 1482 and 1483 of the record, I asked you whether or not you knew that the number of tons and the number of passengers handled, as shown in the Company's annual report to its stockholders, which contains figures for the Frisco proper, and the North Texas lines, consolidated, did not include a duplication of all the tons and passengers interchanged across the Red River. I
1458 will modify that question now and ask you if there is not a duplication, such as I suggest, in these figures with the exception of such tons and passengers as have originated and terminated at the stations lying south of the Red River on the line through Paris, to and including Paris, that being 17 miles of railroad known as the Paris & Great Northern. You have made some investigation since we were last here and can answer that question now, can you not?

A. I can answer it, yes. In the first instance, I want to say, that I accepted the Company's annual report as containing actual statistics.

Q. You mean the Company's annual report to its stockholders, don't you?

A. Yes, sir, the report to the stockholders. I have now compared the Company's annual report for the year ended June 30, 1913, using that as an example of the general situation as I understand it; and the report says, that for the system 19,739,760 tons of revenue freight were moved. That is on page 37 of the Company's report to the stockholders. And that is the figure which I have used in Exhibits D and E.

In the Company's report to the Interstate Commerce Commission for the lines north of Red River, covering an average mileage of 4,741.58, on page 93, the tonnage shown is 18,084.16. That is the figure which I have used in Exhibits B and C.

Now, in the reports of the Texas lines to the Interstate
1459 Commerce Commission I find that on page 93 of the St. Louis, San Francisco & Texas report the Company is shown as handling 1,418,730 tons.

On the like page of the report of the Fort Worth & Rio Grande to the Interstate Commerce Commission it is shown as handling 267,518 tons.

On the report of the Brownwood, South and North Railway (an abbreviated form of report on page 4) it shows 5,504 tons handled. That makes a total of 1,691,752 tons. As compared with the difference between the company's annual report to the stockholders and the report to the Interstate Commerce Commission of 1,655,744 tons, a difference of 36,008 tons, which cannot be harmonized. I don't know what the difference is.

Q. What is the total of these single reports, and the Company's report to the stockholders?

A. I don't understand that question.

Q. What is the total of these single reports?

A. The reports of these Texas lines, leaving out the Paris & Great Northern, is 1,691,752 tons.

Q. Now add the lines north of the Red River to that and state what the total is.

A. 19,775,768.

Q. So there is a duplication there?

A. Not necessarily. It shows there is probably some du-
1460 plication. I don't mean it is all duplication.

Q. It does, however, show a duplication?

A. It shows some duplication. If you don't mind I would like to go a little further on that same subject.

Q. You used the ton and passenger figures taken from the annual report to the stockholders, and which contain this duplication, in preparing your Exhibits D and E, did you not?

A. Yes, sir.

Q. So, then, for all of the tons and passengers which are duplicated, as you have admitted, in your Exhibits D and E, you have in constructing those exhibits in reality applied the Arkansas cost per ton and per passenger as developed in the Company's exhibits and adjusted by you, four times instead of twice, as the face of your Exhibits indicate. Isn't that a fact?

A. Yes, that is right.

Q. Mr. Simson, I called your attention prior to our last adjournment to some very large differences between the earnings and expense figures which you had set up in many of your exhibits, and those which appear in the Company records. You have had sufficient time since our last adjournment to make a second examination of the Company records and develop to your satisfaction whether or not I was correct on that proposition, haven't you?

A. I have.

1461 Q. I now want to go over the ground with you again and get the matter straight in the record: To that end I will put to you again, in substance, the questions which I have previously asked you in regard to these errors:

Take your Exhibit H: Isn't it a fact that in all periods represented in that exhibit you have set up the earnings of the Frisco lines north of Red River alone?

A. Yes, sir.

Q. Now, as to the expense figures in that exhibit: Refer to the left-hand column, which sets up expenses for the fiscal years: Is it

not a fact that all of the figures in that column for every year and of every character of expense, include not only the expenses of the lines north of the Red River but also the North Texas Lines?

A. It is a fact.

Q. That is to say, you have set up in your Exhibit H insofar as the full fiscal years are concerned, the earnings of approximately 4,750 miles of railroad and the expenses of approximately 5,250 miles of railroad: Is that not correct?

A. I don't know that I remember the mileage, but the earnings do not include the Texas lines and the expenses do.

Q. Whatever the mileage may be?

A. Yes, sir, whatever the mileage may be.

Q. Take the column in your Exhibit H which is captioned "Four months ended December 31st": The earnings figures you show in that column for all of the periods are for the lines north of Red River alone, aren't they?

1462 A. Yes, sir.

Q. Now as to the expense figures in the four months' column: Isn't it not a fact that these also, with the exception of those appearing opposite the year 1910, are, for all of the periods and for every character of expense, the expenses of the lines north of the Red River plus the North Texas lines; and that you have here again in your Exhibit the earnings of 4,750 miles of railroad and the expenses of 5,250 miles of railroad?

A. The same as for the total year, yes.

Q. Is it not a fact that in this period you have gone still farther afield in getting your expense figures which you put into your Exhibit H, and that that represents the expenses of the lines north of the Red River plus those of the North Texas lines, plus those of two lines on the Gulf Coast, namely, the Beaumont, Sour Lake & Western and the Orange & Northwestern Railroads, the earnings of which also are not reflected in your earnings figures.

A. I will have to look at that.

Q. That is, in the last four months of 1909?

A. 1909 is not shown in Exhibit H at all. We skipped that year.

Q. The second item of expense in each of the blocks, in the four months' column, is what I refer to.

A. (After examining exhibit:) Yes, that will be true.

Mr. Hill:

Q. In your figures on these subjects Mr. Simson, have the figures for the fiscal year ended June 30, 1909, been included?

1463 A. They have not.

Mr. Hill: The figures for the fiscal year ended June 30, 1909, have been omitted by both sides: I wish Mr. Hamilton would explain just why that was done, so the Court will understand this hiatus in a series of years.

Mr. Hamilton: The situation is just this: Our Auditor, under his old formula, which has been referred to here as the Douglas formula, began the regular assignment of expenses to the various states in which the railroad operates with the fiscal year ended June 30, 1910.

So, when we came to prepare our exhibits, the expense involved in getting data, under that old formula for 1909 was practically prohibitive. The accountants for the state, of course, were under the same handicap; and, therefore, could not include the 1909 fiscal year figures.

The reason the Company was able to produce figures in its original affidavit for 1907, which have been used here as bases for equation under the new formula, was that they were especially prepared at that time for the purpose of the affidavit which Mr. Douglas filed.

Mr. Hill: I just bring that out to show why on both sides the exhibits show a hiatus for the year 1909.

Mr. Moore:

1464 Q. Repeating the question, so as to avoid any confusion, is it not a fact that in the four months ended December 31, 1909, which appear opposite the 1910 figures in Exhibit H, you have gone still further afield in getting the expense figures which you put into your Exhibit H, and that that represents the expenses of the lines north of the Red River plus those of the North Texas Lines, plus those of two lines on the Gulf Coast, namely, the Beaumont, Sour Lake & Western and the Orange & Northwestern, the earnings of which also are not reflected in your earnings figures?

A. Of the month of September, 1909, that is true. They then stopped including them from that on.

Q. So in this period, in your Exhibit H, you have the earnings of approximately 4,750 miles of railroad and the expenses of approximately 5,428 miles of railroad, in round figures: Is not that a fact?

A. I am not familiar enough with the mileage and I do not know it by those figures.

Q. Whatever the mileage may be that would be true?

A. Yes, sir, that would be true.

Q. So for the purposes to which you apply them, every one of the percentages representing expenses in your Exhibit H is meaningless?

A. It is applying factors which are not comparable, yes.

1465 Q. Turn now to your Exhibit I: All of the expense figures of every character in the first column of that exhibit, which is headed "Entire line", are those of the lines north of the Red River plus the North Texas Lines, are they not?

A. Yes, sir.

Q. And they have in them the same errors as expense figures as Exhibit H?

A. Yes, sir.

Q. The figures in the second column of the exhibit, you have taken from the Company's exhibits, haven't you?

A. Yes, sir.

Q. They do not contain the same discrepancies nor inherit the basic errors which apply to the other figures in this exhibit which we have discussed, isn't that a fact?

A. They are amounts assigned by the Company to the state of Arkansas.

Q. But they are comparable to earnings and expenses of the same railroad, aren't they?

A. Yes, sir. They are what are assigned to a given territory of the railroad.

Q. And they are based upon the entire line figures of the lines north of the Red River?

A. Yes, sir.

Q. Both as to earnings and expenses?

A. I believe that is true.

Q. All of the percentages reflecting expenses, in your Exhibit I, are meaningless for the purpose for which you applied them, are they not?

A. Yes, sir, they do not apply to the situation.

1466 Q. Take your Exhibit J: It is based upon the percentages obtained in Exhibits H and I, which percentages by reason of the errors you have made in those exhibits, become meaningless for the purpose for which you have applied them: Is that not a fact?

A. That is true.

Q. The results obtained in Exhibit J under your plan are incorrect, are they not?

A. Yes, sir.

Q. And that exhibit becomes of no force and effect, does it not, in your contention?

A. That is true.

Q. Take your Exhibit K, Mr. Simson: In this exhibit you have set up the erroneous average expense figures which you put into Exhibit H, and the erroneous percentages which you obtained in Exhibit I, and the whole of the expense figures of your Exhibit K is based upon these other incorrect exhibits, is it not?

A. Yes, sir, so far as expenses are concerned.

Q. The ultimate results shown in your Exhibit K, then, are entirely incorrect, even upon the theory upon which you have prepared that exhibit?

A. They would have to be modified to meet the actual facts, to have any force.

Q. Take your Exhibit L: The first column on this exhibit is an exact counterpart of your erroneous Exhibit H, with the

1467 exception that you have added the figures for the year 1914 to this exhibit, and these 1914 figures are erroneous in exactly the same way as those for all the other years: Isn't that a fact?

A. The same differences exist as in Exhibit H, carried one year further.

Q. Then all of the expense figures shown in the first column of Exhibit L are incorrect, and contain just the same errors as similar figures in your Exhibit H?

A. Yes, sir.

Q. The expense figures of your second column of your Exhibit L are all in error, just as are those in the first column, and for the same reason, aren't they?

A. Yes, sir.

Q. There is this further error in the expense figures in the second column of your Exhibit L, in that in some of the periods you have included with the expenses of the Frisco lines north of Red River

the expenses of both the North Texas Lines and two lines lying on the Gulf Coast: Is not that a fact?

A. Yes, sir, for the month of September, 1909.

Q. In this Exhibit L also you have set up the earnings of one railroad and the expenses of another railroad: In fact, it is pretty much the same proposition as if your exhibit had contrasted the earnings of the Frisco Railroad with the expenses of the Mis-
1468 souri Pacific, or some other railroad of longer mileage? Is that not a fact?

A. The exhibit was not intended as a contrast of earnings and expenses. It was intended as a means of obtaining the normal average within a given period.

It is true that the earnings are computed for one territory and the expenses for a larger territory.

Q. Take your Exhibit M: This shows upon its face that it is based upon your erroneous exhibits L and I, does it not?

A. It is based on Exhibits L and I, yes.

Q. Is it not a fact that the expense figures set up in the first column of this Exhibit M are those of the lines north of Red River, plus the North Texas Lines, and that the percentages in the second column, which you applied to the figures in the first column, are based upon the expenses shown in Exhibit L, which include the expenses of the lines north of Red River, the North Texas Lines, and also the Beaumont, Sour Lake & Western, and the Orange & Northwestern Railway: Is that not a fact?

A. It does not include the Beaumont, Sour Lake & Western, or the Orange & Northwestern.

Q. Are not your percentages in Exhibit L based on figures including those lines?

A. Yes, the percentages. But the figures in the first column do not.

Q. Let me repeat my question again, so there may be no
1469 confusion: Is it not a fact that the expense figures set up in the first column of this Exhibit M are those of the lines north of Red River, plus the North Texas Lines; and that the percentages in the second column, which you applied to the figures in the first column, are based upon the expenses shown in Exhibit L, which include the expenses of the lines north of Red River, the North Texas Lines, and also the Beaumont, Sour Lake & Western and the Orange & Northwestern Railway?

A. Yes, to a slight degree the Orange & Northwestern and the Beaumont, Sour Lake & Western are in there.

Q. In this Exhibit, then, you have set up the earnings of one railroad and as a primary move the expenses of that railroad plus the expenses of some other railroads, and then have averaged these expenses figures upon per cents based upon the expense of still other railroads: Isn't that a fact?

A. Yes, the territory for which the earnings apply is less than the territory to which the expenses apply.

Q. Then this Exhibit is incorrect, even upon the theory of aver-

ages upon which you prepared it, and is of no value and effect in supporting your contention here: Is not this a fact?

A. It is incorrect in that the basis of the percentages and the figures for expenses are used, yes.

Q. Take your Exhibit N: You repeat in this exhibit the same errors as to setting up the earnings of the lines north of the
1470 Red River, and the expenses of the lines north of the Red River plus the North Texas Lines; or, in other words, the expenses of approximately 500 more miles than your earnings apply to: Isn't that a fact?

A. Yes, sir. The same error crept into that that crept into the preceding ones.

Q. It is true, then, that all of the percentages derived from your expense figures are meaningless for the purposes for which you have compiled them?

A. They are not comparable units, that is true.

Q. Take your Exhibit O, upon which you relied in your testimony previously given, as being the most reflective of the actual conditions you sought to exhibit by your system of averages, and tell me if it does not show upon its face that it is based on your erroneous Exhibits H and N, which reflect the earnings of one railroad and the expenses of that railroad plus some other railroads: Isn't that a fact?

A. It is an exhibit based on Exhibits H and N, and the errors in Exhibits H and N are elaborated in the figures shown here.

Q. Your Exhibit O, therefore, inherits all the errors in Exhibits H and N, and is of no force or effect in supporting your contentions in this case: That is true, is it not?

A. Not in its present form, no, sir.

Q. Take your Exhibit P: This exhibit is also based upon your erroneous Exhibits H and N and is made up of the earnings
1471 of the lines north of Red River and the expenses of the lines north of the Red River plus the North Texas Lines, and plus still two other lines of railroad on the Gulf Coast, namely, the Orange & Northwestern and the Beaumont, Sour Lake & Western Railway: Isn't that true?

A. That is true.

Q. This exhibit, is therefore, valueless for the purposes of your contentions in this case, is it not?

A. It is subject to the same criticisms as the others.

Q. Mr. Simson, take your Exhibit Z and tell me if the percentages which you show therein are not the erroneous percentages which you arrived at through the errors made in your Exhibits N and H; and, also, if it is not a fact that you used as part of this exhibit all of the erroneous figures which are reflected in your Exhibit O? Isn't that a fact?

A. This is based on Exhibit O. If there are any errors in Exhibit O due to using the expenses of the wrong territory, they are reflected in Exhibit Z.

Q. It is also the basis of Exhibits N and H, is it not?

A. Yes, sir.

Q. This Exhibit Z inherits all the errors of Exhibits H, N and O, does it not?

A. Yes, sir.

Q. It is incorrect for the purposes for which you have introduced it in this case, is it not?

A. Yes, sir.

1472 Q. Just to get the matter clearly in the record I want to sum up this whole proposition and I will ask you if it is not a fact that these numerous errors in your figures, which we have been discussing, run through every one of your Exhibits H, I, J, K, L, M, N, O, P and Z; and if each and every one of these exhibits is not incorrect to the extent that they have set up in them the earnings of the lines north of the Red River, which is the railroad which is plaintiff in this litigation; and either the owner or lessee of all the lines in Arkansas involved in this litigation; and have, on the other hand, in making your computations as to expenses included the expenses in all the periods for from two to five other railroads which are not parties to this litigation or interested in any way therein. Isn't that true?

A. Yes, that is true.

Q. All of these exhibits, then, that I have enumerated are valueless for the purposes you have introduced them in this case?

A. In their present form, they are.

Q. On page 1491 of the record I asked you if you did not know that these North Texas Lines and the South Texas Lines, namely, the Beaumont, Sour Lake & Western and the Orange & Northwestern, were not separately operated and distinct properties: In your answer, on page 1492 of the record, you seem to be in some doubt about that proposition. In order that that point may be clear and that

1473 there may be no misunderstanding about it, and its relation to the earnings and expense figures introduced in evidence here, I want to ask you if you do not know that the railroads referred to here as the North Texas Lines, namely, the St. Louis, San Francisco & Texas, the Fort Worth & Rio Grande, the Paris & Great Northern, and the Brownwood North & South; and the South Texas Lines, namely, the Beaumont, Sour Lake & Western and the Orange & Northwestern, are in no way interested in this litigation. Do you not know that to be a fact?

A. I believe that is true.

Q. Look at your Exhibit R, Mr. Simson. Have you any idea how much of this "milling in transit" adjustment applies on intrastate earnings as they are reflected in the Company's exhibits here?

A. No, sir.

Q. Look at your Exhibit V: Take the last line of that Exhibit V: What does the exhibit show there upon the theory on which it is constructed, for the average revenue per ton mile for the total of the four months' period in the state of Arkansas?

A. 8.72 mills per ton.

Q. Now state what the exhibit shows on the basis upon which you have prepared it, as the average earnings per ton mile upon the freight traffic of the entire railroad?

A. 9.52 mills per ton.

Q. Evidently you are of the opinion, Mr. Simson, that the
1474 Company's revenue per ton mile in Arkansas, is about 8% less than the revenue per ton mile on the freight traffic of the entire railroad as a whole. That is what the figures you have produced in the last line of that Exhibit V show, do they not?

A. There is a difference between 8.72 and 9.52.

Q. Has that showing of the average freight revenue per ton mile which you yourself have produced in this Exhibit V any effect upon your opinion of the fairness of the averaging system upon which you have built up your other exhibits in this case, and in which you have considered the earnings of the entire railroad as one factor and those of Arkansas as another?

A. I don't think so.

Q. Are you satisfied with that answer, Mr. Simons?

A. I think I am.

Q. Does it not occur to you that your system of averages which you have prepared, by reason of this very condition which you reflect in your Exhibit V, has resulted in setting up as Arkansas earnings in your Exhibit more revenue than was actually earned in that state, or could have been earned under the actually existing traffic conditions?

A. No, sir, I do not. I have only set up an average proportion of the whole, which the Company itself has under its old and new formulas assigned to Arkansas.

Q. Based on percentages comparing Arkansas with the
1475 entire line?

A. Yes, sir.

Q. Take your Exhibits AA and BB, which cover the year ended June 30, 1913, in the first of which you have set up expenses on the basis of the Company's new formula and in the second of which you have set up expenses on the basis of the Company's old formula, and arrive at certain percentages of return upon the basis of valuation you have shown in these exhibits: I want to ask you if you do not know that during this entire year ended June 30, 1913, the Company was charging for intrastate passenger transportation in Arkansas rates based upon three cents per mile, and for intrastate freight transportation in Arkansas the court tariff rates?

A. I have seen the exhibit in which the periods that the rates were in force were shown, and my remembrance is that that is true.

Q. I will hand you Exhibit 33. Please see if that is not the one.

A. (After examining exhibit.) It shows here that the court tariff rates and three cents per mile were in force.

Q. I will ask you now to take the Company's exhibit No. 22 and tell me what would have been the diminution in the Company's intrastate freight revenue had the traffic actually moved in this year 1913 been charged for upon the basis of the Railroad Commission's Standard Distance Tariff No. 3?

A. On the basis of this computation, which I have not
1476 checked, it appears that the revenue would be reduced by $140,264.55.

Q. That is on both intrastate freight and passenger traffic, is it not?

A. Yes.

Q. Deduct that diminution of $140,264.55 you have quoted from Exhibit 22, from the net income available for return shown in your Exhibit AA, and tell me what figure you get?

A. $1,267,388.21.

Q. If you had made the deduction as indicated, what would the percentage of return shown in Exhibit AA have been?

A. (After figuring.) 6.9%, substantially.

Q. Take your Exhibit BB, Mr. Simson, and deduct from the net income available for return, which you show in that exhibit, the same diminution in intrastate revenue $140,264.55, and tell me what you have left.

A. $1,323,489.11.

Q. After you made the deduction I have indicated what would the percentage of return shown on your Exhibit BB be changed to?

A. (After figuring.) About 7.23%.

Q. You know, don't you, Mr. Simson, that during the periods covered here the reduction- in intrastate rates, under the present American system of rate making, almost invariably carry with them reductions of rates on interstate traffic, due to the rulings of
1477 the Interstate Commerce Commission affecting the relation of combination of local rates with through rates, and long and short haul conditions, and competitive conditions?

Mr. Hill: I don't think that is a proper question for Mr. Simson to answer. He has not qualified as a rate man.

A. I don't want to answer that question.

By Mr. Hill:

Q. Why not, Mr. Simson?

A. Because I have no special knowledge upon that subject.

Mr. Moore:

Q. Does not this re-ticketing of interstate passengers have that very effect, giving the interstate passengers the benefit of this state rate? Isn't there an exhibit which shows that?

A. I have never seen that exhibit.

Q. That is shown in Exhibit 42, isn't it?

A. I don't know what effect that re-ticketing has. I have never examined into that subject.

Q. You stated on page 1217 of your testimony that you had some curiosity to know how maintenance of equipment repair items for locomotives, passenger cars and freight cars and work equipment compared with the totals, as shown in the proceedings of the Fifth Annual Convention of the American Railway Engineering and Maintenance of Way Association, and you made an exhibit,
1478 which has been marked Exhibit F, as the result of your investigations.

A. Yes, sir.

Q. I believe you said you did not pretend to have knowledge yourself of the matters involved in that?

A. I don't pretend to have any knowledge of engineering, but I do pretend to be able to use statistics compiled by those who have knowledge of the basis of the statistics.

Q. I understand that, but I meant to ask you this: You do not pretend to have knowledge of the basic principles on which Mr. Berry made his figures?

A. No, sir, not at all.

Q. Or upon which Mr. Wellington made his formula?

A. Not at all.

Q. Do you know that Mr. Berry was discussing the effect of changes made on a part of the line of the Union Pacific Railway, which had been completed at the time this paper was prepared by him, and the effect of these changes upon economical operation, for the purpose of ascertaining whether the saving which would be effected by such changes justified the expenditure involved in the relocation of the line?

A. I read his paper, but I don't know that I have in my mind now all the other text matter in the paper.

Q. Mr. Berry himself explains the purpose of his paper. I will read to you some extracts from it, beginning on page 3 of Bulletin No. 49 of the American Railway Engineering and Maintenance of Way Association:

1479 "When the present owners of the Union Pacific Railroad took possession of the property January 1st 1898, it was decided that extensive improvements should be made in order to put the road in condition for more economical operation. After a thorough examination of the conditions a general policy was agreed upon which has since been carried out, and for which the management has made liberal appropriations.

* * * * * * *

The reduction of ruling gradients was considered the most important object to be attained in the relocation of the line, saving in distance next, reduction of total degrees of curvature third, and saving in rise and fall fourth."

Now, on page 4 it says:

"In the Chief Engineer's office estimates were made of the various locations, and statements prepared showing comparisons of physical characteristics, and of the estimated annual saving in operation of the proposed lines as compared with the existing lines."

And on page 6, it says:

"Any expenditure in construction which reduces operating expenses by an amount greater than the interest charges on such expenditure will be an economy. The volume of traffic being equal, the most economical location is that which will require the least expenditure to cover the combined cost of interest and operating expenses."

Now, isn't it true from the statements contained in those extracts I have read, that Mr. Berry was making this investigation, and this discussion involved the question as to whether the expenditure in-

volved in the relocation was not justified by the saving in operating expenses?

A. I would rather re-read the rest of the paper before I answer that question.

Q. Does not what I have read seem to indicate that?

1480 A. Not necessarily.

Q. Does not what I have read indicate that was his purpose?

A. Not the whole of the purpose.

Q. Mr. Berry states these various estimates were made in accordancewith the methods of Mr. Webb using his classification of expenses and percentages affected by changes of gradients, distance, and so on, applied to the actual cost of operation for a period of years.

Do you understand that Mr. Berry himself assumes that he has given any study to the correctness of that formula? Don't you understand that he, being a civil engineer, and not a mechanical engineer and not an operating man, finding this formula in Mr. Wellington's book, used that for the purpose of developing the idea he was trying to show, or trying to explain in his paper?

A. I have no idea of the process that Mr. Berry followed in producing his figures. Mr. Berry was an engineer of some reputation, at least, but how he got at his figures I don't know.

Q. Let me read what Mr. Berry says about that. On page 4 he says:

"These comparative estimates (that is of location, expenses, and so on) were made in accordance with the method given by Mr. A. M. Wellington, using his classification of expenses and percentages affected by changes in gradients, distance, etc., but applied to the actual cost of operation on the Union Pacific Railroad for a period of years.

1481 On page 8 he says:

"In order to obtain the value of the details of location for the use of engineers in the western states, the general methods of both Mr. Wellington and Professor Webb are applied in this paper to the operating expenses of the Union Pacific Railroad Company."

Now, Mr. Simson, doesn't that indicate that Mr. Berry was simply making an application, as he states there, of the tables he found in the works of Mr. Wellington and Professor Webb?

A. I think he does state he used the Wellington tables as a basis. What part Professor Webb may have had in it I don't know.

Q. Did you notice what I read you last?

"In order to obtain a value of these details — location for the use of engineers in the western states, the general methods of both Mr. Wellington and Professor Webb are applied in this paper to the operating expenses of the Union Pacific Railroad Company."

A. Yes, but I don't know what part Professor Webb had in it.

Q. The point of my question is—I am not asking particularly about Webb or Wellington's part in it—but I ask you if that does not indicate that Mr. Berry, for the purpose of making this comparison of cost and expense with reference to relocation, and its effect upon operating expenses, did not simply take and use those tables pre-

pared by Mr. Wellington and Professor Webb, as he found them—just as a man would use a handy tool—without stopping to
1482 consider whether Professor Webb or Mr. Wellington were correct. He found those tables and used them for the purpose of making the application he refers to here. Isn't that a reasonable conclusion?

A. I don't think it would be reasonable for an engineer to use another engineer's figures without some thought as to whether they were applicable or not. I wouldn't do it.

Q. I would expect what you say to be correct if Mr. Berry, a civil engineer, wanted to use figures that it was in the line of a civil engineer to make. You would expect him, being a civil engineer, and that being in the line of his profession, to make his own figures. But if he wanted to use figures that were made up by an operating man, on something that did not come in his line, and that it was not necessary for him as a civil engineer to work out, and he found those figures worked out by an operating man, or a mechanical engineer, or whatever class of man deals with such figures as Professor Webb and Mr. Wellington were preparing, wouldn't it be likely, assuming that as a civil engineer he was not familiar with that sort of thing, that he would take the figures prepared by the men whose business it was to prepare such figures, and use them?

A. He admits he used them as a basis, and his paper admits that.

Q. Isn't it entirely reasonable to believe that a carpenter who wanted to build a house, and wanted to know what the bricks
1483 in that house would cost, would go to a brick mason to find out the cost instead of trying to figure it out for himself?

A. It is possible; but he may have had enough knowledge from past experience to figure it out for himself.

Q. Without taking a conjecture of that sort, say he is building a frame house and wants to put a brick chimney in it: Isn't it reasonable to suppose that he would go to a man who understands that and get his figure on what the brick would cost?

A. I think it would depend on how long he has been in the business and his past experience with masons. He might reasonably make an estimate on such a matter himself.

Q. Suppose a contractor is going to build a railroad bridge and wants to know what the iron works would cost him: Wouldn't he likely go to some man familiar with that branch of the subject, for the purpose of obtaining the cost of iron, or any other matter which was of knowledge peculiar to this other man's calling, to ascertain those facts?

A. It is very probable; unless he had on his own staff competent people to advise him on the point. It is possible Mr. Berry may have had competent operating people on his own staff.

Q. I am not speaking about that. We know Mr. Berry assumes to be a civil engineer. We know it is not the business of a
1484 civil engineer to deal with such matters as Professor Webb and Mr. Wellington were presumed to know about. Wasn't it the most natural thing in the world for Mr. Berry, without questioning these formulas, to go and use them?

A. I don't know whether he did or not.

Q. I didn't ask you that. But wouldn't that be the most natural thing in the world for him to do that?

A. That would depend upon his surroundings.

Q. Do you know the difference between a mechanical and a civil engineer?

A. I know they are separate professions, but I don't know that I would want to describe the technical ground each one covers.

Q. Do you know the formula covered by Professor Webb and Mr. Wellington, and dealt with by Mr. Berry covers problems dealt with by mechinical engineers?

A. I don't know that.

Q. You know they are not such problems that would come within the scope of work of a civil engineer?

A. I don't know that I would be willing to admit that either, on the whole.

Q. I will ask you if these extracts do not indicate to you that Mr. Berry's purpose was primarily to determine the effect of the changes in location of the road, on the economies of operation, and he simply used the tables prepared by Mr. Wellington and Professor Webb, as he found them?

A. I said I would prefer to re-read the entire article before
1485 I would answer that question.

Q. Have you ever read Professor Webb's work "Economics of Railroad Construction?"

A. I don't remember having done so.

Q. You do not, then, remember what he said about Mr. Wellington's formula, do you?

A. No, sir.

Q. I am going to read to you some references made to it by him; you know that Mr. Webb wrote much later than Mr. Wellington, don't you?

A. No, sir. I have never seen his works. I don't know when they were published.

Q. The work I will read from was published in 1912. Mr. Wellington's work was published in 1877.

On page 241-2, Professor Webb says:

1486 "Wellington similarly distributed the cost of freight car repairs to its various causes, and by a very similar method estimated that 36% of such repairs was due to distance on a tangent between stations. The considerable transformation in the construction of freight cars, since the time that Wellington compiled this table, has certainly utterly changed the absolute cost of car repairs, even if it has not changed the relative percentage of the cost of the various items. In the lack of any better figures"——

That is just what Mr. Berry did. In the lack of any better figures he used these. Wouldn't you assume he did that?

A. He used them as a basis, he said.

Q. Mr. Webb is a mechanical engineer, and here is what he said about the reason why he used them:

"In the lack of any better figures this same figure will be used for items 34-36."

Those items will be found in the summary on page 95 of the same book. 34 is freight car repairs and 36 is freight car depreciation.

"Although there are evidently enormous differences between Items 34-36 and 43-45, Items 43-45 are so small that it is hardly worth the calculation of any more precise figures, and therefore the same ratio, 36%, will be used for Items 43-45. Wellington made no definite calculations for the itemized cost of passenger car repairs, but contented himself with using the same figure as for freight cars, 36%. Such a percentage is probably very much too high, since it is estimated that about one-half the cost of passenger car repairs is due to the work of painting, inside and out, and of maintaining the seats and upholstery in proper condition. Such repairs are chiefly a function of time, and are but little, if any, dependent on mere distance between stations. It is therefore considered that Items 31-33 will not be affected more than 20% by any addition of distance."

1487 Now we have here Professor Webb's estimate of the value of Mr. Wellington's formula on car repairs, in his work written in 1912.

Now I want to ask you if you are not aware of the great changes that have occurred in the size, construction, and method of handling cars since Mr. Wellington wrote, as referred to in Professors Webb's book in the extract I have read?

A. Undoubtedly the last ten years has seen a very great change in the construction of equipment.

Q. What are your views, Mr. Simson, as to the application of Mr. Wellington's method to the present type of equipment and the present method of operation?

A. I would not undertake to give my views on the application of any of the tables—Professor Webb's, Mr. Berry's or Mr. Wellington's—so far as the foundation of the tables is concerned. That was not the object in preparing the exhibit I prepared.

Q. I know. But we want to find out if we can in this case what effect the changes in conditions and methods would have had upon Mr. Wellington's formula, assuming it was correct at the time he published it.

Now, right along on that line, isn't it a fact, and don't you know, that in all mechanical industries and all mechanical effort, conditions are changing continually; new types appear and new

1488 methods are being used. Don't you know when that occurs and the old types and methods become antiquated, they cease to be valuable or useful, except historically?

A. I know the times are changing and methods are changing, but I have no idea what effect the change of times and the change of methods have upon the percentages made years ago. I disavow any idea of attempting to apply the changes in mechanics and the change of times.

Q. I want to ask you about a matter which I don't think depends upon technical or skilled knowledge, but simply a matter of common observation. Do you think a formula of the kind prepared by Mr.

Wellington to determine the percentages of injury to the kind of freight cars that existed in those days, with the character of draft gear, and all the other conditions that existed then, as to those parts of machinery which are subject to injury, can be applied to the kind of car and character of draft gear and the different methods of construction of the present day cars?

A. I don't know.

Q. Then do you believe the same conditions that would result from the method of operating cars as you heard testified to in this case and compared with Mr. Wellington's days exist now. I don't mean operating conditions, but the handling of cars?

A. So far as I know you may be able still to attribute 36% of the injuries to freight cars to the distance they travel, and still be
1489 able to attribute 20% to grades and 2% to curvature.

Q. And how about switching?

A. You might still be able to attribute 16% to switching.

Q. Notwithstanding the difference in construction and method of handling cars?

A. I have no knowledge on the subject. The tables can apply, so far as I know.

Q. I have no knowledge either, but I believe I know enough and I believe any man who has any observation knows enough to know that an absolute and utter change in conditions and methods would render inapplicable a table that was established as applicable to an antiquated condition of things. Does it require technical knowledge for a man to know that or to assume that?

A. I am willing to assume that all these improvements in freight cars have reduced the total maintenance charges, but I am not willing to assume it has not relatively reduced the percentages that Mr. Berry has assigned to each cause.

1490 Q. Was the distribution made in the tables prepared by Mr. Wellington or by Mr. Berry made with reference to a division of maintenance of expense as between line and terminal service as the same is defined in the formula that is filed in this case as Exhibit No. 1?

A. Not exactly. The assignment of the Berry table percentages to line and terminal was the same for each class of equipment, that is, using the same items and following as nearly as may be possible without a division of any of these percentages, or an attempt to divide any of these percentages, the definition of line and terminal as given in Exhibit No. 1.

Q. Did Berry attempt to make any division between line and terminal?

A. No, none whatever.

Q. Is there anything in his book—I suppose you have read it, inasmuch as you have brought these tables here?

A. I read some of it.

Q. Is there anything in his book to indicate that he had in mind at all the subject of a division on the basis of line and terminal expense as defined in the formula used in this case?

A. I don't know. I never heard of them until this case came up.
Q. Do you suppose Berry had it in mind?
A. I doubt it.

Q. Then you cannot say that you believe Berry had in
1491 mind such a division as is expressed in this formula, when he prepared those tables?

A. I would very much doubt if he did.
Q. I want you to tell me what information is contained in the Berry table that can be used to divide expense between line and terminal service. Point out what there is.
A. Merely the heading classifications of his causes as expressed in percentages.
Q. State them, and begin at the beginning.
A. Will you take locomotives or what?
Q. Take freight car repairs.
A. In the matter of stopping and starting locomotives——

Judge Hill: He said freight cars.

A. Pardon me. Freight and work equipment are classed together. To stopping and starting Berry assigns 20% of the contributing causes for freight repairs.

Mr. Moore:

Q. Just one moment. Tell me what Mr. Berry had in his mind, what class of stopping and starting. Starting and stopping is classified in this formula. What classification did Berry have in mind when he made that?
A. I don't know. I know just exactly what the book says.
Q. Don't you know there is no classification attempted there and that you have no guide by which you can say Mr. Berry had in mind such a classification of that expense between line and terminal service as contained in the formula in this case?

1492 A. I told you I made the distribution of these contributing causes as shown by the Berry tables and expressed in per cents to as near the formula definition of line and terminal as possible. I do not say but what some of the starting and stopping might, under this new formula, be considered terminal and some of it might be considered line. I couldn't divide it. I did not make any pretense of dividing it. I used the same item for each of the three classes in the same identical way.
Q. But, Mr. Simson, I ask you what information you obtained from Mr. Berry's table that you could use as a guide in separating these expenses as he has assigned them, to line and terminal. You turn in answer to it as to freight cars to that item of assignment of 20% to stopping and starting?
A. Yes, sir.
Q. Just assume that that is correct, for the illustration, but that is not the point we have here. The point is, how is that to be divided between line and terminal? Do you get any information whatever from Mr. Berry's table that will help you in making that separation?

A. No, sir, not from Mr. Berry's tables. I find that he assigns to stopping and starting 20% of the total cost.

Q. I understand, but——

A. And I find that the bulk of the stopping and starting, as is defined in Exhibit No. 1, is attributable to terminal work. Therefore, I assigned it all to that, realizing that a part of it, at
1493 least, ought to be assigned to line if we had the information to do that.

Q. Realizing, then, that you had not that, the assignment is not correct?

A. If it is consistent for each of the three, as I have applied it for comparative purposes, it can make no difference whether or not the assignment of the comparative units in Berry's table technically follows the formula.

Q. Does it not make a very vast difference whether you assign the different kinds of expense chargeable to stopping and starting, as between line and terminal, on a correct basis, if you are going to make an assignment for the purpose of this case? I mean, take the formula that is used in this case: If you are going to attempt to make an assignment to be used for any purpose in connection with this case——

A. My only attempt was to apply the percentages shown by Mr. Berry's tables, so far as I was able from the information the Berry tables gave, to the formula filed as Exhibit No. 1, and to use that method consistently for all three classes of repairs.

Q. What you have said about Mr. Berry's tables applies also to Mr. Wellington's formula?

A. Yes. I have the formula, and that is all.

Q. The formula requires that part of this stopping and starting expense be assigned to line?

A. Yes, sir.

1494 Q. You would not do that?

A. I would not say what proportion of this 20% for stopping and starting on freight was line and what proportion was terminal, no.

Q. You are not capable of doing it——

A. I have taken the percentage tables, just as they are.

Q. You did not know enough about it to make the assignment?

A. That goes right back to the question of technical knowledge of engineering of which I make no pretense.

Q. So the charge you make of stopping and starting to line and terminal is palpably erroneous, then, according to your own judgment?

A. It is the nearest distribution I could make from the information the Berry tables gave me. It is approximate.

Q. Is stopping and starting a technical question?

A. As to its application in this instance, yes, sir.

Q. It is to you and to me, I admit, but the long and short of it is this, Mr. Simson—I am not in asking these questions trying to trap you, or anything like that; of course, you know that—but if any part of stopping and starting is chargeable to line, then to the extent

that that was chargeable to line you are in error in charging it to terminal?

A. Undoubtedly, but I want to say that I used the same method consistently for all three expenses and it would affect all
1495 equally in comparison.

Q. In a discussion on this subject by Mr. Symons in the testimony which I believe you heard him give in this case, the division was made of the locomotive as a whole into separate items representing the vital parts of the engine: You remember, that don't you?

A. No, sir. I think that was the first part of his testimony and I was not in Little Rock that day.

Q. I want to ask you if you don't think Mr. Symons' method of dividing the car first, separating the engine—I will speak of the engine now, or the car, either one, it does not matter which—into its several component parts representing the physical anatomy of the engine or car, and then making the division as to the expense of maintenance between the several parts with reference to the extent that the contributing causes may have produced injuries upon the parts in the kind of service which a man of experience in operating railroads would know would produce such damage, would not be a better way of dividing it.

A. I don't know but what the Berry and Wellington tables are based upon that same analysis. I don't know what it is based on. That may be.

Q. You don't know that they were?

A. I don't know that they were or that they were not.

Q. You have no right to make an assumption one way or the other?

A. The same right as to assume to answer the technical
1496 question that you put to me.

Q. Can you assume that either Mr. Berry or Mr. Webb made such an analysis when they did not make an attempt to divide between line and terminal?

A. They did not know what line and terminal was in those days.

Q. What are you talking about, then, when they did not know——

A. They might have based it upon an analysis of the anatomy of freight cars——

Q. Suppose they did base it upon an analysis of the anatomy of freight cars and said 20% assigned to every car is for stopping and starting, and stopped there: You did not divide that 20% between different branches of service, between line and terminal. That is what we are talking about now. Just at this moment I am not attacking their assignment of 20% to stopping and starting; it is the division of that 20% between line and terminal.

A. I assume they had no reason to so divide it; at least it is not shown.

Q. If it was the physical anatomy he had in view why does he express the functions they perform and not say something about the different parts of the anatomy?

A. I cannot tell you why.

Q. Does not that show absolutely that he did not take that——

A. I cannot tell you whether or not he did anything of
1497 that sort. I am using the bald figures as shown by the table in the book I have referred to.

Q. In your exhibit you have apportioned expense growing out of time and exposure, between line and terminal on the basis of the overhead charges, charging 6% of total maintenance of freight cars to that cause, and assigning 3.72% to line and 2.28% to terminal.

A. Yes, sir.

Q. What is that division based on?

A. On the relative sums of the other items apportioned to line and terminal.

Q. I understand that, I understand that you base your division on overhead expenses.

A. Thoroughly arbitrary.

Q. But I mean on what was that theory of division based, what fact or information or knowledge did you have upon which you based such a theory of dividing that?

A. It was the only data I had as to the other items of causes, and it is purely an assumption that they would follow the rest of the segregation.

Q. Why could you not make the same assumption, then, and divide stopping and starting and switching, and those other expenses which you knew, you say, were part of line and part of terminal?

A. Because if I had attempted to divide stopping and starting and switching on the same basis I would have had no factor in the
1498 terminal on which to base a division, in the first place.

Q. Are you aware that from 85 to 90 per cent of the time of freight cars is not spent in standing around terminals?

A. Is not spent in terminals?

Q. Don't you know that?

A. No. In the rate decision in Washington a few days ago it was stated that freight cars were in use, I think, only two or three days out of the month. That is the latest information I have on the subject.

Q. When not in use they are standing around the terminal?

A. Not entirely; some on the sidings outside.

Q. Does not that prove that the greater part of the time they are standing around in the terminals and the yards?

A. I don't know if they are.——

Q. If they are only used two or three days in the month are they not around in these——

A. They may be on the sidings outside of the terminals.

Q. About the terminals?

A. Not necessarily; the sidings are not all at terminals. A great many more tracks run out parallel to the main line.

Q. Do you know of any case where in normal conditions the side tracks are blocked with a line of standing cars out of use and thereby impeding and delaying the passing of trains——

A. Oh, not on the main line.

1499 Q. What I want to know is, is there any difference in the effect of the elements on them growing out of that fact?

A. I think the elements probably work the whole 365 days in the year, as far as the elements go, whether they are in service or out of service.

Q. I ask if there is any difference in the effect of the elements upon them whether on the line or in the terminals, that is the question I ask.

A. I don't think so.

Q. What?

A. I doubt it. However, that is not a technical answer. As a matter of fact, I don't know, but I doubt it.

Q. If they are standing still and out of service the greater part of the time why should they have a greater charge to line than they have to terminal?

A. I don't know as they should.

Q. Have you not made that kind of a division in your exhibit?

A. I let time and exposure follow the charges assigned above.

Q. That is to say you adopted overhead expenses for just any good reason——

A. That is the only basis I had for dividing it.

Q. It is purely a theoretical accounting matter?

A. It is an arbitrary division between line and terminal of that item based purely on the way I assigned the other proportions.

1500 Q. It is entirely independent of facts and entirely independent of the division made in the formula used in this case?

A. It is arbitrary.

Q. For stopping and starting you have charged 20% of the cost to that item and assigned it all to terminal?

A. Yes, sir.

Q. Is not a proportion of this service in line work?

A. I presume so. I said in the first place that I was unable to divide it. I have taken no liberties whatever with the Berry tables other than an apportionment of the time and exposure between the two. The tables show no definite information classifying these charges as between line and terminal, and I have classified them substantially to coincide with Exhibit No. 1, and by "substantially" I mean so far as I could do so without attempting to subdivide Mr. Berry's table.

Q. Did you not take some liberty with Mr. Berry's figures when you distributed and subdivided between line and terminal in some expenses here?

A. I merely applied them.

Q. You merely applied them?

A. Yes, sir.

Q. Is not the stopping and starting for water and other purposes on the line, and breaking up and making up of trains at

1501 terminals, all line service under the formula in this case?

A. Under the formula it would be.

Q. Then when you applied 20% to terminal you omitted to give line what it was entitled to, did you not?

A. That is true; whatever proportion of that 20% under this formula would have been line, should have been segregated if I could segregate it.

Q. You were making this exhibit with reference to the formula and trying to adapt it to the formula, were you not?

A. I was trying to see how nearly my adaptation of the percentages shown in the Berry tables, subdivided between line and terminal and applied to the actual maintenance figures for the months of November and December, 1913, came to the assignment for those same months under the Company's method as shown in its Exhibit No. 8, to see whether the results under the Company's method were at all consistent with the Berry table.

Q. How could you accomplish that result if you disregarded line and terminal in your work?

A. It is equally disregarded in each instance, so it would not affect, materially, at least, the comparison of the two results.

Q. Did not the disregarding of it in each instance simply cumulate the error?

1502 A. It would change the figures slightly in each instance, but I don't believe if it is consistently disregarded it would change the comparison.

Q. Then you charged to terminal such wear and tear of equipment as was properly chargeable to line under the formula in this case, did you not?

A. To whatever extent the arbitrary division of time and exposure is incorrect the assignment to line and terminal is incorrect.

Q. When you do that you not only deprive the line of its proper proportion of this expense but you increase the terminal proportion by adding to it what you withhold from the line?

A. That is true.

Q. Thereby cumulating your error in that way?

A. It is not my error. I have assigned, as I said, in the first place the divisions made by Mr. Berry as nearly as those divisions would permit, to line and terminal as defined in Exhibit No. 1.

Q. Does not all that and what you said about it simply show and demonstrate that Mr. Berry's tables could not be applied in that way?

A. Oh, no, not at all.

Q. Just point out if there is anything in Mr. Berry's tables that would furnish a basis of division between line and terminal.

1503 A. There is nothing; nothing except the titles under which he has distributed it.

Q. That applies to the functions and not to line and terminal?

A. The "distributive causes" is the way he characterizes it.

Q. I mean, this starting and stopping, switching, curvatures, grades and distance applies to functions and not to the service that is rendered as between line and terminal?

A. The caption there shows the percentages, the distribution of contributing causes in per cents——

Q. I know, but I am asking you if these items he used are not such as relate to the function of——

A. Yes; the reasons for his location, you might say, of the causes for expense.

Q. In switching charges you follow Mr. Berry and charge that amount, 16%, and all of that you assign to terminal?

A. Yes, sir.

Q. That is in freight. In passenger cars it is 11%?

A. Yes, sir.

Q. And in locomotives it is 37.07%?

A. 27.07%.

Q. Is it 27?

A. Yes—no, that is getting up steam and terminal work. Pardon me. Switching is not shown as a separate contributing cause, for locomotives.

1504 Q. Do you think this assignment of 16% for the damage done by switching in the case of freight cars is too high or too low?

A. I don't know.

Q. Have you any opinion at all about it?

A. None whatever. I never studied the subject.

Q. You just simply followed Mr. Berry in that?

A. I followed Mr. Berry.

Q. Don't you know that a large part of car repairs is due to rough handling in switching?

A. I haven't any special knowledge on the subject. I have heard it generally attributed to rough handling.

Q. What do you think about it, Mr. Simson?

A. I don't know as I want to express an opinion on it. I like to express opinions about things I know something about.

Q. I am going to read you what a man who deals in those things said about that. This is from the official proceedings of the Western Railway Club, on page 352, I think it is. Mr. Bruce V. Crandall, a writer on these subjects, says, in a paper presented by him to that body,

"One of the leading railway car men in this country is authority for the statement: 'That 68% of the total freight car repairs is due to shocks which the draft gear fails to destroy.'

Another car repair man has recently published a statement in which he shows that 54% of the total freight car repairs is due to the same cause, shocks, which the draft gear fails to destroy.

There is plenty of evidence to show conclusively more than
1505 one-half of the freight car repairs is due to the fact that the draft gear is not destroying the shock."

A. Is that all in terminal, the tracks?

Q. No, that is in switching service.

A. All together in switching service?

Q. In switching service. He also says, on page 1135,

"While the expense of maintenance due to natural wear and tear does not advance to any great extent, but damage due to shocks increases with the heavier cars and engines and longer trains."

If this writer is correct don't you think that in view of the well known fact that a larger percentage of car repairs is caused by rough

switching in yards and stations, that Mr. Berry's 16% of total expense of maintenance of freight cars is fairly representative of the actual cost of repairs, other than switching?

A. From your statement of the larger engines and longer trains there, I assume what he is talking about there is not only switching, but stopping and starting as well, but here you get——

Q. I am not talking about stopping and starting.

A. You are not, but he is. He says longer trains. You quoted it.

Q. He says that from 54 to 68 per cent of this damage is caused from switching.

A. No, sir, he said on account of the draft gear. The draft gear can be damaged in line service as well as in terminal service.

1506 Q. I am not talking about the division between line and terminal.

A. But I think he is.

Q. I am talking about Mr. Berry's assignment of 16% of the total expense of maintenance of switching.

A. I don't propose to criticise the amount that Mr. Berry assigns to any particular cause.

Q. If so large a part of car repairs as from 54 to 68 per cent is due to rough handling in switching, then is 16% enough for Mr. Berry to have assigned to switching?

A. What you read said from 54 to 68 per cent was due to draft gear, injuries to the draft gear. The draft gear can be injured in trains as well as in switching.

Q. You are mistaken about that. Let me read it to you again:

"One of the leading railway car men in this country is authority for the statement: 'That 68% of the total freight car repairs is due to shocks which the draft gear fails to destroy.'

Another car repair man has recently published a statement in which he shows that 54% of the total freight car repairs is due to the same cause, shocks, which the draft gear fails to destroy.

There is plenty of evidence to show conclusively more than one-half of the freight car repairs is due to the fact that the draft gear is not destroying the shock."

What he means is this: He means that notwithstanding the draft gear may absorb a part of the shock, still it does not absorb

1507 enough to prevent injury to the cars, and despite the absorption by the draft gears these per cents of injury occur to cars from switching.

A. Does he say from switching? He does not as you read it to me.

Q. I don't know how to make it any plainer.

A. I don't see how it illustrates it as to switching.

Q. What are the shocks which the draft gear fails to destroy?

A. You can get them on the line as well as in the terminal.

Q. I assume that, I will grant you that, but whether you get it on the line or in the terminal, what you want to do would be to add both together and then get the sum total of it and tell me if, in view of what this author says, Mr. Berry has assigned enough to that in assigning only 16% to it.

A. If I were to assume I should assume that Mr. Berry's stopping and starting would also cover those injuries to the draft gear. In other words, that Mr. Berry's assignment on the definition you are reading there, would cover not only switching but stopping and starting.

Q. Which is the larger item in the way of damage and friction, switching or stopping and starting?

A. You don't mean Mr. Berry's table?

Q. I don't mean in Mr. Berry's tables.

A. I don't know. I refuse to answer that.

1508 Q. You have assigned all the switching expense to terminal, have you not?

A. Yes, sir.

Q. Is not part of that properly assignable to line, under the formula that is used in this case?

A. Yes, the making up and breaking up of trains would be, under this formula.

Q. You stated that a while ago: Why did you not assign some to line?

A. I don't attempt to divide any of Mr. Berry's percentages other than time and exposure, which is common to both.

Q. Then you really have not made any attempt to follow the formula in your division between line and terminal?

A. As I have stated three or four times, I have taken Mr. Berry's tables, and, using the definition of line and terminal as given in Exhibit No. 1, have assigned them without division, except the one item of time and exposure, to line and terminal as nearly as they will apply, and then compared the results obtained by such an assignment with the assignment under the so-called General Managers' average.

Q. In view of your statement that part of this damage occurs on the main line service, on what ground would you assign all of it to terminal?

A. The larger portion of it I thought was terminal.

1509 Q. To the extent that you failed to charge to line you robbed the line, and to the same extent you cumulated the terminal by adding it to the line?

A. Yes, but it is consistently done for each of the three, and the only reason for doing it was to compare the results under a consistent distribution with the distribution as made under the General Mangers' tables.

Q. The only way in which that is consistent is that it is erroneous, all of it is erroneous and, therefore, it is consistent?

A. I have handled the same items in each class in the same way.

Q. If you made a mistake in one you made a mistake in all?

A. I haven't made any mistake, I don't believe, so far as the detailed information given me here indicates.

Q. Did you not make a mistake in not assigning some of this character of damage to line?

A. If I had any real basis for dividing it I should have divided it.

Q. If you would look at the formula you would find that making

up and breaking up trains, and you just stated that was line—if that is the case you knew some part of it should be charged to line?

A. Yes, I knew some part of it, under the definition as given in Exhibit No. 1, would be assigned to line.

Q. The next item that you make is curvatures, 2%.

1510 A. Probably some part of that ought to be assigned to terminal.

Q. You charged it all to line?

A. Yes, sir.

Q. Upon what basis did you make that assignment?

A. The same basis as the others, and adaptation of the information given by Mr. Berry as to the conditions, and the bulk of the curvatures I considered were on the line, although there were some on terminal.

Q. Did you attempt to adapt it to the requirements of the formula in this case?

A. Yes, sir.

Q. Do you know whether curvature exists in the terminal yards?

A. Yes, they do.

Q. In the yard, the transit yard?

A. Yes, undoubtedly.

Q. If you were trying to adapt your assignment to the formula why did you not make some allowance for that?

A. I did not know what allowance to make.

Q. You did not know?

A. That is true.

Q. You knew it ought to be shown?

A. I say again that I used the Berry tables as given there and adapted them as nearly as possible to the formula.

Q. And make mistakes all the way through, did you not?

1511 A. I did not make any mistakes all the way through. I adapted the figures I had before me to the formula as nearly as the formula would permit and as nearly as the information would permit.

Q. You reached erroneous results, did you not, when you charged all of this to terminal and none to line? in view of the fact that you say part of it was line?

A. If I were only considering the repairs to locomotives I would consider the comparison was worthless, but when I am attempting to compare a distribution of the Berry tables and the results which they would produce under that distribution with the expenses as apportioned under the General Managers' average, I do get some value, irrespective of the line, of the possible errors in assignment of individual items so long as I am consistent in it.

Q. Is putting all of that in line right, or is it wrong?

A. Slightly wrong. There is some curvature in terminals.

Q. Have you any idea how the proportion of curvature in terminals would compare with the proportion of curvatures on the main line?

A. No, sir.

Q. So you don't know how far you were wrong, do you?

A. No, sir.

Q. All you know is that you were wrong?

1512 A. I know there are some curvatures in terminals, but I also know they take those at a much slower speed than they do the ones on the line. The probable damage is considerably less.

Q. Are not the grades sharper in the terminals?

A. Probably.

Q. And consequently more injuries occur to the equipment where they are sharper?

A. I would imagine that would be due to the speed at which they are taken.

Q. I want to ask you if you think this assignment is not inconsistent with your assignment of all switching to terminal, in view of the fact that the curves in terminal tracks are used in terminal switching?

A. I don't think so.

Q. Why is it not so; is it not palpably so right on the face of it?

A. No, I don't think so.

Q. You assign all the switching to terminal and then you assign curvatures all to line?

A. My understanding of this distribution is that the switching is an operation cause and that the curvature and physical are direct causes.

Q. Does not all the damage grow out of operation, though?

A. That is true.

Q. Whether it occurs on a curve or on a straight line?

A. That is all true, but I still think that that is a sufficient answer to it.

1513 Q. You are bound to use the engine and car on the rails——

A. Absolutely.

Q. Now we will go to the grades: Mr. Berry assigned 20% of the total expense to grades. You assigned all of that 20% to line?

A. Yes, sir.

Q. Have you any reason to believe that Mr. Berry would have assigned all that expense to what is defined as line service under the formula in this case, if he had been attempting to make a division between line and terminal?

A. I don't know what Mr. Berry would have done.

Q. Of course you don't know and I don't know, but you can judge what a man would do in view of the conditions and the objects that he had in view.

In view of Mr. Berry's knowledge as a civil engineer in regard to gradients, do you believe he would have made such an assignment as you did if he had been attempting to make the division between line and terminal?

A. I would not if I had known what proportion was line and what was terminal. I know there are some grades in terminals.

Q. Why should you utterly disregard a known fact and knowingly make an assignment here that you know don't conform to the actual conditions?

A. Again I will have to say that I took Mr. Berry's views and adapted them, as nearly as his division would allow, to the
1514 definition of line and terminal, and have used it consistently for all three classes of expense, and the sole value of it is a comparison of the results obtained under the General Managers' average basis with the adapted Berry tables, to see how nearly each of them was consistent with the other.

Q. Does not that demonstrate the impracticability of using Mr. Berry's table as you did use it?

A. Not at all.

Q. Not if it necessitated your falling into error and using wrong methods in making the assignment between line and terminal?

A. Not at all; not at all.

Q. There is testimony in this case that damage occurs to the cars from switching in what they call "hump" tracks, some of which are used in terminal service: In view of this fact why should not an allowance be made to terminal in the assignment of this item?

A. I did not hear the testimony. I don't know.

Q. Did you not hear the testimony in regard to the hump tracks, and about there being grades, and sharp grades?

A. Not that I remember.

Q. Don't you know it injures the tracks between long and short——

A. To tracks?

Q. To tracks around terminals?

A. This is injuries to equipment you are talking about? Your question was as to tracks. You asked me if I did not know if the injuries were to tracks?

1515 Q. I did not say anything about injuries to tracks. I asked if you do not know that industry tracks have sharp grades.

A. They are very liable to, yes.

Q. To the extent that this damage is inflicted in that way would it not be chargeable to terminal?

A. Yes. The damage on such tracks, in my opinion, would be slight, for the reason that they are taken at slow speed.

Q. The question is not how far you have gone wrong; the question is whether you have not entirely misconceived the application of the formula in the attempt you have made to divide this expense between line and terminal?

A. No, sir, I don't think so.

Q. What part of this 20% would you say should be charged to terminal?

A. I don't know.

Q. Is there anything in Mr. Berry's table, or in Mr. Wellington's formula, that will guide you in dividing this expense between line and terminal?

A. Nothing whatever.

Q. You stated in your testimony that you have taken Mr. Berry's tables and, as near as the information there given would permit you, and you think it is fairly close, have assigned to line and ter-

minal the percentages of the maintenance following the
1516 division of line and terminal as given in the formula: How could you do that if Mr. Berry's table gives no information that would be a guide to you?

A. I think the errors would probably substantially counterbalance each other.

Q. We are not talking about set-offs. I don't believe two wrongs can make a right.

A. I don't, either, but when I say they are fairly correct I think they are in total.

Q. Why do you think so?

A. Because I think the errors that occur in assigning all to terminal for stopping and starting, and all to line for grades, might be considered as fairly offsetting.

Q. But you have stated repeatedly to me in connection with each one of these items that you did not know how much should be assigned to line or terminal, respectively, as——

A. I don't know.

Q. Wait a moment until I get through with my question. If you don't know that then how do you know and how can you assume that one offsets the other? You would have to have that knowledge to make an assumption that one offsets the other, would you not?

A. That is my general opinion.

Q. It is pretty general, too, is it not? Take the matter of distance: 36% of that total percent was charged to that item by Mr. Berry, and you assign it all to line service?

A. Yes, sir.

1517 Q. Distance of line, under the formula, Exhibit No. 1, to which Exhibit F purports to apply, must be limited to making up and breaking up trains and straight road running. All other movements or distances covered are terminal charges, under the formula. A great many miles are in what is properly defined "terminal service" under the formula. Why was all that expense assigned to line, giving terminal no charge?

A. I think that the idea was that Mr. Berry meant that entirely on line service.

Q. What difference would it make what Mr. Berry meant, in dividing between line and terminal?

A. It makes all the difference in the world. I put them where I thought he meant. I was consistent in the three.

Q. You were making your division with reference to Mr. Berry's idea and not with reference to the formula we are using in this case?

A. I am making my distribution based upon the percentage of causes for railroad maintenance, equipment maintenance, which is shown by Mr. Berry's table, assigning them as nearly as the information given in the tables will permit to the definition of line and terminal as shown in Exhibit No. 1.

Q. You say you made your assignments where you thought Mr. Berry would put them. You said a while ago that you did not suppose that Mr. Berry ever heard of this division between line and terminal.

A. I don't think he did.

1518 Q. If that is true you were not attempting to follow the formula in this case, but your conception of Mr. Berry's idea of how the separation would have been made if he had known of such division?

A. Not at all.

Q. I don't see what else you could mean.

A. I will tell you what I mean if you will give me a chance.

Q. Yes.

A. My definition of Mr. Berry's term "distance" in his table I assume to be line distance; that is, a distance between terminals, you may call it, and it is on that basis that I assigned it to line; not on any basis I found for thinking that Mr. Berry ever considered line or terminal.

Q. What division do you think Mr. Berry would have made of yard work?

A. I don't know.

Q. What amount of the 36% which you assign to line do you think should be assigned to terminal in view of the fact that considerable distance is made by cars and engines in terminal service?

A. I assume that it is probable that Mr. Berry's assignment to switching and stopping and starting would cover all terminal engines; that the question of distance is distance between terminals, and I think no part of the 36% would be assigned to terminal.

Q. Then you think Mr. Berry's conception was that starting and stopping was all line work——

1519 A. If he had that definition in mind I think he would have assigned it all to line.

Q. Why did you assign it all to terminal?

A. I did not to——

Q. Stopping and starting?

A. Oh, stopping and starting. Pardon me. I don't think Mr. Berry ever had any idea as between starting and stopping, as I have told you before—I mean between line and terminal.

Q. In the light of that assumption you made just now what do you think he would have done in the assignment of distance?

A. Distance?

Q. Yes.

A. I think he would assign distance all to line, for the reason that I think his definition of the term "distance" as used by him, meant distance between terminals.

Q. Is there anything in his paper to indicate that?

A. No, I don't think there is. That is an assumption on my part.

Q. Is it not a fact that you did this work which is contained in Exhibit F, on your ideas of what Mr. Berry meant in regard to this thing and that thing, without any knowledge and without anything in his book to really guide you?

A. As I said several times, I took Mr. Berry's tables and distributed the causes as shown by those tables as nearly as the information given would permit, to line and terminal as defined in Exhibit

No. 1, and from those figures have ascertained what pro-
1520 portion, on that basis, of the cost of maintenance of equipment would be assigned to line and what proportion would be assigned to terminal, and have compared those results with the results achieved by the use of the General Managers' average tables. The sole value of the exhibit is a comparison of the results, the Berry table results being produced upon a consistent and like basis.

Q. Did you compare it with Mr. Symon's division?

A. No, sir.

Q. What did you find in the General Managers' division, as you speak of it and by which I suppose you refer to what is found on pages 13 and 14, I believe, of the formula, to give you any indication as to their views in regard to the character of assignment made here——

A. I did not find anything to explain their views.

Q. What do you mean by reference to that?

A. I mean that the formula provides that certain expenses shall be apportioned between line and terminal on the basis of some definition and averages obtained from a number of General Managers, and I assume that the figures for the months of November and December, as shown in the Company's Exhibit No. 8, are divided upon that basis between line and terminal.

Q. Don't you further have to assume that that formula was made, or attempted to be made, in compliance with the character of line service and terminal service?

1521 A. I never saw the letter which called forth the information given by the General Managers. I don't know what it is based upon.

Q. I mean this—I am not talking about the General Managers' views——

A. I thought you were.

Q. Don't you understand from the exhibits and testimony in this case that at least an attempt was made to assign this expense as between line and terminal on the basis of the formula?

A. Oh, yes.

Q. That is the question I ask you.

A. Oh, yes.

Q. If you have not assigned it on the basis contained in the formula, which you admit you have not done in scarcely any instance——

A. Yes.

Q. —how can you say you conform to that formula or to the views of the General Managers, as far as that is concerned, which meant it should be done on that basis?

A. All I have done is to take the Berry tables, as you have seen in Exhibit F, and assigned the items between line and terminal on the basis of the definition of line and terminal as shown in the Company's Exhibit No. 1, and have applied the percentage results of such an apportionment to the total repairs, renewals and depreciation of locomotives in Arkansas; the repairs, renewals and
1522 depreciation of passenger cars in Arkansas; the repairs, renewals and depreciation of freight train cars and work equip-

ment in Arkansas, as shown by the Company's Exhibit No. 8, and have compared the result of such a division upon these apportioned Berry tables, with the result as shown by the Company in Exhibit No. 8, which I assume follows the plan contained in Exhibit No. 1, which refers to a General Managers' average as a part of the basis.

Q. If you did that and confess that you did not make a proper assignment then you did not follow the plan followed by the Company in Exhibit No. 8?

A. I took the figures from Exhibit No. 8 that I compared them with.

Q. Did the General Managers' figures make any reference to these functions that are referred to in this table—stopping and starting, switching, curvatures, grades, time and exposure——

A. I don't know, I have never seen them.

Q. Does not that destroy absolutely your use of that as a foundation?

A. Not necessarily.

Q. You use that very view as a foundation?

A. Not at all. They have attempted to say that so much of locomotive repairs shall go to line and so much to terminal.

Q. Certain per cents?

A. Yes, sir. And I assume that they did that upon the
1523 basis of the definition of line and terminal as contained in Exhibit No. 1.

Q. So far as Mr. Symon's division is concerned, you don't know anything about that?

A. I haven't seen it.

Q. You have made no reference to it?

A. I haven't seen the figures.

Q. Do you find anything in Mr. Berry's table to guide you in making a division of the expense of switching?

A. No, sir.

Q. Or anything to guide you in making a division of expense of curvatures?

A. No, sir.

Q. Or of time and exposure?

A. No, sir.

Q. Nor of stopping and starting?

A. No, sir.

Q. If you do not then is it not true that Mr. Berry could not have been dealing with or have had in mind a division of expense between line and terminal service, in the preparation of his table?

A. You can very properly assume that, I think.

Mr. Moore: That is all.

At this point recess was had until three o'clock P. M. on Thursday, November 12, 1914.

1524 ST. LOUIS, November 12, 1914.

No proceedings were had at 3 o'clock P. M., and an adjournment was taken to Friday, November 13, 1914, at 9:30 o'clock in the forenoon.

ST. LOUIS, November 13, 1914.

Met pursuant to adjournment as above on Friday, November 13, 1914, at 9:30 o'clock in the forenoon.

The following proceedings were had:

Cross-examination of Mr. L. N. Simson continued.

By Mr. Moore:

Q. You have your exhibits before you, Mr. Simson?

A. Yes, sir.

Q. Will you look at Exhibits B and C. Take the year 1913: What does your Exhibit show are the total operating expenses as per the Company's records?

A. $28,185,421.16.

Q. Tell me, since you have re-checked all these matters due to errors developed in other exhibits, what you find were the expenses for the line north of the Red River for the year 1913?

A. The expenses as reported to the Interstate Commerce Commission on page 65, are $28,599,620.22, a difference of $414,109.06. That amount represents an adjustment which the Company has made in its exhibits, spreading back the previous periods'

1525 charges for ties.

In other words, they have credited the 1913 expenses with $414,199.06 and charged this amount in part to 1912, $144,948.33.

To 1911, $209,250.73, and

To 1910, $60,000.

Q. Wasn't it proper to spread the charge for ties back to the year in which they were used?

A. I think so. And that is the reason I used the corrected figures.

Q. That would make a difference in the years 1912, 1911, 1910?

A. Yes, sir, just as I have explained.

Q. In your exhibit you have attempted to reconstruct the entire line expenses on the basis of the terminal cost per ton or per passenger, and the line cost per ton mile and per passenger mile, as found in Arkansas, by applying these unit costs to the respective entire line units?

A. Yes, sir, upon the assumption contained in Company Exhibit 4, that these are closely reflective of conditions upon the entire line.

Q. Mr. Simson, if that assumption of the Company were wrong, it would affect only the interstate revenue, wouldn't it?

A. No, sir.

Q. How would it affect the intrastate?

A. The intrastate tonnage is used in computing the

1526 factor.

Q. The question is, how would it affect the intrastate revenue in these exhibits?

A. It would not affect the distribution of intrastate revenue to states.

Q. Having reconstructed the line expenses, in the manner in which I outlined a moment ago in my question, you found this en-

tire line constructive expense did not agree with the actual expenses incurred upon the entire line in handling that traffic, I believe you stated?

A. Yes, sir.

Q. Aren't you aware you cannot take the unit cost of any state or district of a railroad and bring out the cost for the entire line, which will agree with the actual cost?

A. The assumption is contained in the Company exhibits, that the state of Arkansas line and terminal expenses, as computed, are closely reflective of the conditions upon the entire line.

Q. Now point out that assumption, where you find it, anywhere in the evidence in this case.

A. Here is the exhibit.

Q. What exhibit is that in?

A. In Exhibit 4 on page 2, the last paragraph.

Q. That applies only to the pro rating of interstate revenue.

A. In computing the cost per ton the intrastate and the
1527 interstate tonnage are both used.

Q. What is the object of that exhibit?

A. Exhibit 4?

Q. Yes.

A. It is a "basis of method of apportionment of revenue to Arkansas and to freight and passenger, intrastate, interstate and mail and express," according to its title.

Q. And it is in that connection that this assumption of closely reflective cost is made, isn't it?

A. Perhaps the best way to answer that would be to read exactly what it says.

Q. But is not that a fact? I can read the exhibit myself, but I want your view about that.

A. The computation of terminal expense was made so that Exhibit 1's theory of allowance of revenue to the states in which the terminal service was performed might be made.

Q. I will repeat my question again. I don't think that answers it.

(Previous question read.)

A. What connection?

Q. The assignment of interstate revenue.

A. Assignment to states. It is used as the basis of mileage allowance in making the assignment to states, to compensate for the expenses of terminals to the states in which the terminals are located.

Q. And it is used solely for that purpose?

1528 A. Solely for that purpose.

Q. Would not there be a fluctuation in the constructive results somewhat corresponding to the difference in the unit cost which you used in your application, and the unit cost that may pertain to the entire line? I am now talking about these Exhibits B, C, D and E.

A. Yes, sir. If it were right to leave out of the constructive costs the terminal expenses on intrastate freight and intrastate passengers, it would, of course, reduce the differences.

But in computing the expense per ton and per passenger as the

Company has computed it, and per ton per terminal and per passenger per terminal, as the correct method would be, it necessarily follows that the expenses on intrastate freight are taken into account. And inasmuch as all of the revenues earned on intrastate freight and intrastate passengers are assigned to the states—to Arkansas in this instance—any amount included in the rate to cover terminal expense is assigned to Arkansas.

Q. Did the Company set up this terminal cost under the formula, as shown in the exhibits, by using tons and passengers to divide between line and terminal?

A. It used one-half the number of intrastate freight tons forwarded and received, per Exhibit 6, page 5; or 63,733, plus the interstate freight forwarded or received, as shown in Exhibit 6, page 5, 313,203; a total of 376,936 tons.

1529 In passenger it used the number of intrastate passengers transported, 217,909; plus the number of interstate passengers transported 148,978, as shown in Exhibit 6, page 2; a total of 366,887.

Q. My question to you, Mr. Simson, was did the Company set up its terminal cost under the formula and, as shown in these exhibits, by using tons and passengers for dividing line and terminal: I don't think your answer is responsive to that question.

A. Oh, you mean between line and terminal?

Q. Yes, between line and terminal.

A. I don't know. I would have to look back at the formula on the line and terminal proposition.

Q. Look at this spread of formula Exhibit No. 1.

A. (After examining paper handed to him:) I do not see any.

Q. Have you given any thought in your exhibits to the manner in which the Company's terminal cost was constructed?

A. I partly accepted the Company's own computation.

Q. Don't you know that the passengers and tons were not used in any way to divide between line and terminal?

A. Apparently this exhibit so shows.

Q. And do not the exhibits based on this Exhibit 1 also show that?

A. I presume so. I have not examined them for that

1530 particular point, and I don't remember.

Q. Assuming they do.

A. Yes. What is the assumption based on?

Q. I will repeat the question:

Assuming they do, were the passengers and tons used in dividing between line and terminal?

A. I think not.

Q. Would not the reconstructive cost as ascertained under your method exceed the actual cost if it cost more to earn a dollar in the state of Arkansas than on the entire line as a whole—as a matter of actual fact?

A. It would.

Q. I think so.

A. However, as used it has been assumed that they do not, as the Company has used it in spreading its revenue.

Q. I don't mean in spreading its revenue, but as an actual fact?

A. The only way they have used these units cost is in spreading the revenue to compensate for the expense of terminals.

Q. I want to ask you if it does not cost more to earn a dollar in Arkansas than upon the entire line, as ascertained under the method by which these costs were ascertained—in other words, there is a shorter haul in Arkansas than on the entire system; does not that have some effect?

1531 A. There is no shorter haul, probably. At least, I know of no reason why there should be, than in some other states in which the company operates.

Q. I am comparing Arkansas with the entire system, and comparing the cost of hauling a ton of freight one mile in Arkansas as compared with hauling a ton of freight one mile on the entire line; and comparing the cost of hauling a passenger one mile in Arkansas and hauling a passenger one mile on the entire line.

A. I have no data of the cost of haul on the entire system.

Q. Assuming it is half the cost of haul on the entire system, wouldn't it cost more to earn a dollar in Arkansas than on the entire line?

A. I don't know why.

Q. Does it not cost more to transport a ton one mile or a passenger one mile in short haul traffic than it does in long haul traffic, on account of the greater terminal burden that would attach to the traffic per ton mile or per passenger mile in the shorter haul traffic?

A. So far as the ton mile goes, the mileage distance tariff usually allows for such things.

Q. Is not that why it does allow more?

A. That is not confined to Arkansas, necessarily, but it applies on any short haul.

Q. Assume the haul is shorter in Arkansas. Would not

1532 the reconstructed costs as ascertained in your method, exceed the actual cost, if it costs more to earn a dollar in Arkansas than on the entire line of the road?

A. I don't think so.

Q. Mr. Simson, it seems to me you do not understand my question. Let me put it in a different way:

If it costs more to earn a dollar in Arkansas than on the entire line, would not the reconstructive cost, as ascertained under your method, exceed the actual cost?

A. If the expenses are higher in Arkansas, naturally it would be reflected right straight through.

Q. That is necessarily so?

A. Naturally, of course.

Q. I thought you misunderstood my question.

A. I did, of course, misunderstand your question. That is assuming they are, of course.

Q. Wouldn't it cost more to transport a passenger one mile or to

transport a ton one mile, in a locality where the density of traffic is materially less than in a territory where there is a greater density of traffic, owing to the fact that the facilities are less fully used or occupied in the lower density of traffic territory than in the greater density of traffic territory?

A. That is a relative question. Usually there are less facilities provided where there is less traffic.

That is more of an operating question than one I would
1533 care to attempt to say very much about.

Q. There is not less track used?

A. There is a main line track, but it might not be as good a track or as expensive a track to maintain.

Q. How about your obligatory service, such as local freights, and things like that, which you are obliged to prepare for?

A. They would run lighter trains with smaller equipment, and it would require less expensive track, unless it would be in a piece of main line.

Q. Are the wages of the crew any less where there is light density traffic than where it is heavy?

A. I don't know as to that. I am not informed on that.

Q. Take that one item: If the wages of the crew are the same, would not that reflect a difference?

A. If the wages of the crew are the same, and it required the same size crew, of course, that would vary per unit with the density of the traffic handled.

Q. Don't you have to have the same size crew on a local freight, no matter where it runs?

A. Since the full crew laws went into effect, I don't know.

Q. That would have nothing to do with the local freight?

A. It might. I am not informed on that question.

Q. Isn't it a principle so well and clearly understood that cost is affected by lightness or density of traffic, that in the sections
1534 of the country where there is great density of traffic it is claimed that the rates for both freight and passenger, where density extends to both branches of service, should be lower than where it is light density of traffic? Is not that a well recognized principle?

A. In almost every instance but one that I know of, you can operate on a wholesale plan at less unit cost than upon a retail plan.

Q. That is a complete answer to the question I put. And it applies to railroads just the same as to any other business?

A. It applies to everything except a telephone company. That is, it applies to everything else I know of.

Q. Would not the density of tons handled, or of passengers handled, at a station, or in a locality, have a material bearing upon the unit cost of handling one ton or one passenger at stations, or within the territory, on account of there being certain elements of expense that must necessarily be incurred somewhat regardless of the number of passengers or the number of tons that may be handled at such stations or in such locality?

A. Up to the point where you cannot keep one man busy, that is true. After that, the usual way I believe for railroads to operate, is to furnish just as little help at a station as is possible to get the work out.

Q. Now take it the other way: Suppose there is too much
1535 work for one man and not enough for two, in one locality, and that they have enough for two in another locality.

A. You might carry that through and say it would be a split between one man and two men.

Q. Wouldn't that result in an increase in the cost per ton or per passenger at those stations?

A. At the station where the one and two men limit is in effect, the total cost is relatively very small.

Q. Suppose you have to keep a freight engine, because the business is too heavy to get along without it, and yet the business is not heavy enough to keep that freight engine employed all the time, while in another yard, perhaps side by side with the first one, they keep another engine; and in still another yard they need eight or ten engines. Don't those conditions affect that?

A. Yes, sir, but they affect them in other states as well as in Arkansas, and that unit is upon a general average.

Q. There is no large terminal in Arkansas?

A. I think perhaps the only one that may be considered large is at Fort Smith.

Q. Isn't it true, if that is true, that there is in Arkansas some "lost motion" in providing even minimum facilities?

A. I don't know.

Q. Could you compare the yards at St. Louis or at Kansas City with anything in Arkansas?

1536 A. As to size, no.

Q. Have you made any investigation as to density of traffic in Arkansas as compared to the entire line?

A. No, sir.

Q. Do you know that the entire line density is much greater than the density shown in Arkansas?

A. I don't know that, no, sir.

Redirect examination.

By Mr. Hill:

Q. Mr. Simson, it developed in your cross-examination that your exhibits beginning with H and running through to P and also Exhibit Z, had in them this mistake in principle: That you had used the revenue of the lines north of the Red River as the entire system; but on expenses you had used some of the lines in Texas in some instances and in other instances probably all the short lines in Texas, to obtain the relation of expenses assigned to Arkansas for different periods?

Have you looked into that and ascertained if that error has been made, and if so, how?

A. Yes, sir. The error was made through a misconception of

what we, in discussing the matter between ourselves, considered the term "entire line" to cover.

In our preliminary work, we unconsciously adopted that term as including the Texas lines.

1537 Later we found this made some trouble in distinguishing, and again unconsciously, with no order or direction to that effect, we substituted the word "system" for the lines including Texas. We used the word "lines" as applying only to the territory north of the Red River.

When we determined to make up Exhibits H to P I sent two of my assistants to get the expenses for the fiscal years from 1908 to 1914, omitting 1909; and for the four months' period, September, October, November and December in those years, for the line—one man, being requested to check the work of the other.

The result was that they misconstrued the term "line" to mean its original meaning as we had unconsciously adopted it. And they brought me the figures including Texas, which was not discovered until it was brought out here on cross-examination.

Q. Since you have discovered it have you reconstructed your exhibits?

A. Yes, sir.

Q. And corrected the error?

A. Yes, sir.

Q. I wish you would introduce them. Take them one by one, and, without going through the detail, call attention to the differences made by using the corrected factors where you used incorrect factors. You have already furnished copies of these exhibits to counsel on the other side?

A. Yes, sir.

1538 Q. Please go through those exhibits and point out those differences.

A. Substitute exhibits have been made and lettered exactly as the ones first filed, with the addition of the figure "1", which has been added as a suffix in each instance. That is, old Exhibit H becomes in the substitute Exhibit H-1.

Q. Take up Exhibit H-1.

A. Exhibit H-1 covers the statement of earnings and operating expense of the entire line for the five years ended June 30, 1908, 1910, 1911, 1912, and 1913, and for the four months ended December 31, in each of those years, with the percentage relations by years and for the period.

There is no change in the earnings either for the fiscal year, or for the four months' period, as shown in Exhibit H-1, compared with Exhibit H.

As to operating expenses, maintenance of way and structures, maintenance of equipment, traffic expense, transportation expenses and general expenses, with the summary of all expenses, as shown in Exhibit H, both for the fiscal years, and for the four months' period ended December 31, has been changed to include only the expenses incurred north of the Red River.

The percentage of maintenance of way and structures in the

four months as compared with the fiscal year, averaging the period, changes from 40.91% to 40.09%.

Maintenance of equipment changes from 36.88% to 36.83%.

1539 Traffic expenses changes from 34.73% to 34.79%.

Transportation expenses changes from 34.80% to 34.76%.

General expenses changes from 34.56% to 34.58%.

Q. In each instance here you are setting opposite the earnings for the particular period the expenses of the identically same line you have taken the earnings from?

A. Yes, sir.

Q. In the other exhibit you made that mistake of including a larger mileage of expenses setting opposite a smaller mileage of earnings?

A. That is right.

Q. Proceed.

A. Exhibit I-1 contrasts the expenses of the entire line for the four months ended December 31, 1907, and the fiscal years ended June 30, 1910, 1911, 1912 and 1913, with the amounts assigned to Arkansas by the Company under the new formula as shown under the exhibits named for the same periods.

Here again the difference in Exhibit I-1 as compared with Exhibit I is in the use of expenses for the entire line north of the Red River instead of the expenses including the Texas lines, as was shown in Exhibit I.

The resulting differences in percentage of maintenance of way expenses are that Exhibit I-1 shows an average ratio of Arkansas to the entire line of 14.02% as compared with 12.97% in the original Exhibit I.

1540 For maintenance of equipment 10.72% as against 10.15%.

Traffic expenses, 10.50% as against 9.79%.

Transportation expenses, 10.74% as against 9.98%.

General Expenses, 10.32% as against 9.45%.

Q. What is the next one.

A. Exhibit J-1 takes the place of original Exhibit J and is compiled in exactly the same manner as the original exhibit was compiled, but substitutes the percentages obtained by the use of Exhibit H-1 and Exhibit I-1 for the percentages in the original exhibits H and I.

The result is that the net income available for return on value of property is reduced from $348,154.83 to $346,092.44.

The percentage of return based upon the one-third proportion of double the assessed valuation in Arkansas, under the revised figures, is 6.62%.

Q. As against what?

A. As against 6.66%.

Q. What is the next?

A. Exhibit K-1 is prepared exactly the same as original Exhibit K was, substituting, however, the expenses north of the Red River for the expenses of the lines including the Texas lines. And also substituting the percentages as shown in Exhibit I-1 for the percentages shown in Exhibit I.

The result is a net income available for return on value of property of $419,969.93 as compared with $420,338.91, under the first method as shown in Exhibit K.

1541 The rate of return is 8.03% as compared with 8.04% as shown in Exhibit K.

Q. What is the next one?

A. Exhibit L-1 submits or substitutes for Exhibit L and covers the earnings and expenses for the entire line, which is identical with the figures as shown in Exhibit H-1 with the exception that the fiscal year ended June 30, 1914 is added, making a period of six years in Exhibit L-1 as against five years in Exhibit H.

The percentage of maintenance of way operating expenses incurred in the average four months' period, in Exhibit L-1, is 38.92% as against 38.73% in Exhibit L.

For maintenance of equipment it is 36.09% as against 36.15%.

Traffic expenses, 34.32% as against 34.26%.

Transportation expenses, 34.73% as against 34.75%.

General expenses, 34.46% as against 34.43%.

Q. What is the next one?

A. Exhibit M-1 takes the place of Exhibit M, is compiled in the same manner as was Exhibit M, but substitutes the average percents as shown by Exhibit L-1 and Exhibit I-1 for the percentages shown in Exhibit M as taken from Exhibit L and Exhibit I.

The result shows the net income available for return upon value of property of $360,568.17. A percentage ratio of 6.89% as

1542 against an amount of net income available for return upon value of property, as shown by Exhibit M, of $362,941.23, or a rate of return of 6.94%.

Q. What is the next one?

A. Exhibit N-1 shows the earnings and expenses for the entire line north of the Red River compared with the assignment by the Company in its various exhibits to the state of Arkansas, using the old or Douglas formula, which differs from Exhibit N in that the expenses for the Texas lines have been excluded, as they properly should be.

The average ratio of maintenance of way expenses assigned to Arkansas as compared to the entire line, under the revised figures, is 12.53% as against 11.61%.

For maintenance of equipment 11.01% as against 10.42%.

Traffic expenses 10.90% as against 10.17%.

Transportation expenses 10.39% as against 9.65%.

General expenses, 11.44% as against 10.48%.

Q. What is your next exhibit?

A. Exhibit O-1 is identical in method with original Exhibit O, with the exception that the expenses for the year 1908 are those for the lines north of the Red River as against the total system lines; and that the percentages applied are those shown in Exhibit H-1 and Exhibit N-1 as against the application in the original exhibit of the percentages shown in Exhibits H and N. The result as shown in Exhibit O-1 shows a net return on the value of property of $392,990.76, a rate of 7.51%, as compared with $394,978.73, a rate of 7.55%, as shown in original Exhibit O.

1543 Q. What is the next exhibit?

A. Exhibit P-1 is identical in method with original Exhibit P, but differs in substituting the expense for the lines north of the Red River for the expenses of the entire system as shown in Exhibit P.

Also the use of the percentages arrived at in Exhibit N-1 instead of the percentages as shown in original Exhibit N.

It shows a net income available for return on value of property on this basis of $472,122.25, a percentage of 9.03%, as against a like income as shown by original Exhibit P of $472,488.77, the rate of return being unchanged, 9.03%, the difference being too small to affect it.

Q. What is your next exhibit?

A. Exhibit Z-1 takes the place of Exhibit Z and is identical with Exhibit Z in method, but substitutes the figures as shown by Exhibit O-1 for the figures as shown by original Exhibit O; and shows that the returns as computed in Exhibit Y are less than the normal average as shown by Exhibit O-1 by $51,524.68, a percentage difference of 98/100 of one per cent as against the amount of difference as shown by Exhibit Z of $53,512.65, a percentage difference of 1.02%.

Q. You have now the figures in these substitute exhibits that you thought you had in your original exhibits?

A. Yes, sir.

Q. So far as the plan is concerned?

A. Yes, sir.

1544 Q. It also developed in your cross-examination that for one year the Texas Lines, in your Exhibits D and E, there was an inclusion of two small lines close to Texas, that should not have been included.

A. Yes, sir.

Q. Explain that, please.

A. The way the erroneous figures excluding the Beaumont, Sour Lake & Western and the Orange & Northwestern roads came to be made was that in getting the figures they were taken from the comparative column in the 1910 report, from which they had been excluded. They ought not have been excluded.

Mr. Moore:

Q. You mean the report to the stockholders?

A. Yes, sir.

Mr. Hill:

Q. Have you made a correction of that?

A. I made a pencil correction of it.

Q. Give us the result of that.

A. Including the tonnage and passenger statistics of the Beaumont, Sour Lake & Western and the Orange & Northwestern and including in the total operating expenses per Company records, the operating expenses of these two lines, which amount to $403,923.25 in the aggregate, the constructive expenses of $30,507,116.81, is comparable with the operating expenses of $25,164,014.40; an excess of con-

structive over actual of $5,343,102.41, as compared with an
1545 amount of $5,747,025.66, which was arrived at by omitting to consider the operating expenses of those two south Texas lines in naming the total operating expenses.

Q. What difference does that make?

A. It reduces the excess of total cost of handling as computed in my exhibits, over the total operating expenses as shown by Exhibit E, which is on the terminal cost reconstructed as to method, from $5,747,025.66 to $5,343,102.41.

In like manner using the terminal cost per unit as computed by the Company, the constructive expense for the year ended June 30, 1909, as compared with the actual expenses including the Beaumont, Sour Lake & Western and the Orange & Northwestern Railroads would result in a reduction of the excess of total cost of handling traffic as computed, over total operating expenses, of $403,923.25; or from $8,179,088.67 to $7,775,165.42.

Q. I wish, Mr. Simson, you would take the original Exhibits D, E and without changing the figures there write the corrected figures in red ink above them.

A. Just for the year 1909?

Q. Yes, to show them on the original exhibit filed.

A. Very well, I will do that.

Q. Mr. Simson, a statement was made to you by Mr. Hamilton on cross-examination, as I gathered it, that there was a duplication of some tonnage in the Company's stockholders' report which
1546 you had used: Have you looked into that and found out whether or not that was true?

A. Yes, there is some duplication in the Company's report to its stockholders, that considered all the lines as a single unit.

It occurs by reason of computing the traffic statistics of the Texas lines separately from the traffic statistics of the lines north of the Red River, and of adding the two together to get a total for the system, irrespective of the fact that some of the traffic moves in both territories and is included in the tons and passengers handled.

However, it does not affect the ton miles or the passenger miles, because each is computed in its own territory.

Q. That is a mistake of the Company, in computing it that way?

A. Yes, sir.

Q. This mistake occurred in the compilation of the Company's report to the stockholders, which you used for the purpose of making your exhibit?

A. Yes, sir. The mistake is included in the Company's report to the stockholders.

Q. You did not know there would be such a mistake in there when you made your figures?

A. No, sir, I did not.

Q. Suppose there was a shipment of freight from Chicago on the Chicago & Alton Railroad, which was taken up at St. Louis by the St. Louis & San Francisco Railroad and taken to Fort
1547 Smith. That would be a good number of tons, say ten tons. And if the Chicago & Alton Railroad and the St. Louis & San Francisco Railroad were reporting as owned by the same person, then

the report would give that as 20 tons: Isn't that the principle upon which it was built up?

A. Yes, sir.

Q. But the ton mileage of this shipment would not be affected: Isn't that true?

A. Yes, sir.

Q. In this way there is some duplication of tons?

A. Yes, sir.

Q. And of the passengers?

A. Yes, sir.

Q. Have you looked into that further and learned how far you can ascertain the expense of that duplication?

A. I can not ascertain exactly what the duplication is, although very close to it; and as to its effect upon Exhibits B, C, D and E, I can only ascertain what the maximum effect would be, not the actual.

In the Company's annual report to its stockholders for the year ended June 30, 1913, which is the year I have used to illustrate this matter, it shows, on page 37, that 19,739,790 tons of revenue freight were moved.

Those are the figures which I have used in Exhibits D and E.

In the Company's report to the Interstate Commerce Commission, which covers the lines north of the Red River, the mileage
1548 average of 4,741.58, it shows on page 93 that 18,084,016 tons were moved.

Those are the figures that have been used in Exhibits B and C.

The difference which might be possibly attributable to the Texas line is 1,655,774 tons.

Now the reports of some of the Texas lines, the four Texas lines which are called the North Texas Lines, to the Interstate Commerce Commission, show that in this same year ended June 30, 1913, the St. Louis, San Francisco & Texas Railroad handled 1,418,730 tons. That is shown on page 93 of the report.

On the same page of the report of the Fort Worth & Rio Grande Railroad 267,518 tons are shown as handled—revenue freight.

On the abbreviated form, page 4, used by the Brownwood, South and North Railway, it shows that 5,504 tons of revenue freight were handled.

These totals for these three lines show 1,691,752 tons, which differs from the difference between the Company's stockholders' report covering the Texas lines and the Interstate Commerce Commission's report covering the lines north of the Red River, which difference was 1,655,744 tons by 35,978 tons.

Now, of the tonnage handled by the three Frisco lines named, some 55,000 tons, in round figures, were interline as be-
1549 tween two of these Texas lines; and are counted by both; and, therefore, that accounts for 55,000 tons of this difference of 36,000 tons. The other 16,000 tons should be added, because it was local tonnage on the Paris & Great Northern in Texas and did not cross the Red River.

Q. That was 17 miles from Paris to the Red River?

A. Yes, approximately 17 miles.

The balance of the Paris & Great Northern tonnage is included in the statistics of the lines north, as the Paris & Great Northern does not maintain a full organization for compiling such statistics at its general office in Texas.

Now, using the Company reports for these four Texas lines to the Railroad Commission of Texas, I find that 249,297 tons were local freight, which did not cross the Red River and could not.

Mr. Hill:

Q. By "local freight" you mean intrastate freight?

A. Yes, sir, intrastate freight billed locally in Texas.

And 244,886 tons were interline state freight.

In other words, that is freight handled by interline billing but which did not pass out of the state of Texas and therefore did not cross the Red River.

This left approximately, ignoring that 36,000 tons difference which I have explained, 1,197,569 tons which were classed as
1550 interline, interstate, and may or may not have crossed the Red River and have been counted again by the lines north of the Red River.

Inasmuch as I cannot find out what proportion of this did cross the Red River, but certainly some of it did, and probably most of it, I presumed it all crossed the Red River.

Assuming it has all crossed the Red River and that this 1,197,569 tons, in Exhibits D and E, have had four terminals instead of two, to adjust the matter would require the deduction of that number of tons, 1,197,569, at the double terminal rate of 72.972 cents per ton, or $873,890.05.

Now, in like manner I worked on an approximation of the passengers in the same way.

Q. This matter has been submitted to the accountants for the railroad and in order to save time in the record, with their consent, just give the results on the passenger, omitting the details. Give the number of passengers duplicated and the results.

A. The number of passengers on interline, interstate passengers, exclusive of the Paris & Great Northern, as shown by the reports to the Texas Railroad Commission, all of whom may have crossed the Red River and, therefore, been duplicated, is 171,512.

Applying double the terminal passenger rate of expense equals $29,764.19. That computation and the one for freight being
1551 based on the terminal cost as computed by the Company and on which the allowance of revenue was predicated.

The total possible reduction for this reason, freight and passenger, is $903,654.24. This would reduce the excess of the constructive expenses for the year ended June 30, 1913, as shown by Exhibit D, from $8,577,145.85 to $7,673,491.61,—the result being, that to eliminate the maximum duplication would reduce the excess by $903,654.24.

In like manner using the same factors, but substituting the terminal expense by the corrected method, the freight would be reduced by $745,822.02 and the passenger by $18,670.80; a total of $764,-

492.82, leaving an excess of constructive over actual, as shown by Exhibit E, of $4,982,917.05 as against the figures shown in that Exhibit, of $5,747,409.87.

In order to show the effect of this possible duplication, or rather, the effect of assuming that there were terminals at the Red River when there were enot, and in order to show the effect of eliminating a terminal allowance at the Red River, I have taken this same tonnage assumed to have crossed the Red River, computed as I have just previously described, and the same number of passengers who might have crossed the Red River, and have applied to both the company's unit costs and the unit costs re-constructed under the corrected method, for passenger and freight terminals, singly, one expense unit in each instance, and find that the excess on freight due to non-allowance of any terminal for the tonnage that
1552 might have crossed the Red River would be $436,945.02, and the similar allowance for lack of terminal at the Red River on passengers, $14,882.09, a total of $451,827.11, as computed by the Company's method. This would reduce the excess of constructive expense over actual, as shown in Exhibit B, from $8,364,569.86 to $7,912,742.75, and if the rates of unit costs under the corrected method were used it would reduce the freight by $372,911.01 and the passenger by $9,335.40, a total of $382,246.41, thereby reducing the excess of constructive over actual, as shown by Exhibit C, from $5,751,142.86 to $5,368,896.45.

Q. Is that after taking out the duplicated tonnage, too?

A. Exhibits B and C are not effected by any question of duplication; B and C require an allowance for non-use of terminals at the Red River.

Q. I remember now. This gives you the data to correct what you stated when you introduced the original exhibit was an error.

A. There was a foot note on the——

Q. It explained you did not have data and you have worked up in this way the data to supply that deficit, we might call it for want of a better term?

A. Yes, that was it.

Q. Does that complete that?

A. I think so.

1553 Mr. Moore:

Q. The purpose of this is to change your Exhibits B and C in which you have originally included the terminal at the Red River and to eliminate that assumption?

A. The purpose of this correction and adjustment is to eliminate consideration of a terminal on either freight or passenger at the Red River.

Mr. Hill:

Q. In your original exhibits you stated that they were in error to that extent, but that you had no data from which to ascertain the extent of that error?

A. Yes, sir.

Q. You are supplying that data from these figures you have gotten, and what you have used would be the maximum error that would be included in your original exhibits?

A. It is an approximation for the reason that it is assumed that every interstate ton and every interstate passenger crossed the Red River.

Q. Which, of course, was not the case, but that being the only available data you have used that as a maximum?

—. ——.

Mr. Moore:

Q. You mean for the interstate passenger or ton originating on or resting on the North Texas lines?

A. Yes; the tonnage shown as interline interstate, and the passengers shown as interline interstate in the reports of the Texas Lines to the Texas Commission.

Mr. Hill:

Q. Mr. Simson, the separation in Exhibit No. 1 under line and terminal expense is an attempt, as I see it, and I ask you if
1554 that is correct, to eliminate the spreading of the terminal cost over the line and making each a separate factor, is it not?

A. It is an attempt to allocate the expense of originating and delivering freight from the expense of handling it on the line.

Q. If that be correctly ascertained, and the terminal cost of originating and delivering freight ascertained, as well as the cost of hauling freight per mile—and, of course, the same thing is true on the passenger side—then the sum of those two would necessarily be the total expense of operation, would it not?

A. If the rates are average for the line, yes.

Q. I am assuming in my question that the whole thing was built up in that way, if correctly built up?

A. Yes, sir.

Q. So the question of the long haul or the short haul could not enter into this factor at all, could it?

A. No, sir.

Q. Mr. Moore has asked you several questions about earning a dollar in Arkansas costing more than earning a dollar elsewhere; I don't know whether you understood his question in that sense, or whether he intended it in that sense, but earning a dollar might mean the expense in proportion to the revenue, or it might mean just the actual expense. I will ask you if this question of terminal cost and haulage cost has anything to do with the revenue received
1555 for that terminal service and that haulage service?

A. Why, the revenue is always predicated to some extent on service, yes, sir.

Q. That is in fixing rates?

A. That is in fixing rates.

Q. I am not speaking about rate making or the equating of the revenue, I am speaking of the actual facts. Take the division of ex-

pense between line and terminal: Is that predicated in any way upon the revenue received for that service?

A. No, sir.

Q. It is just purely a question of expense and a separation of the various items of expense, is it not?

A. Yes, sir.

Q. Of course, we understand that rate-makers, whether Commissions or railroads, attempt to cover those expenses by the rates, but that is not our inquiry now.

Mr. Moore asked you on cross-examination why you had not worked out a separation of state and interstate returns, and you answered the effect on your mind of the decision of the Supreme Court of the United States in the Minneapolis and St. Louis case—we may differ somewhat as to the conclusions about that case, but I want to ask you as an accountant if you would strike any obstacles in the way if you started to work out from the data that is before you in this case state and interstate returns on property in
1556 any given state.

A. It would first necessitate an acceptable formula under which to make the separation. I had no such formula before me.

Q. Your firm prepared a formula in the former rate case, did it not?

A. Yes, sir.

Q. Or, rather, a partial formula?

A. That formula only took up the matter after the separation by state, and the separation between freight and passenger was made, and only covered the separation of the previously ascertained freight and passenger in the state between state and interstate.

Q. If that were erroneously separated necessarily that error would run all the way through to the conclusion?

A. It would appear in the conclusions.

Q. Have you found anything in the formula that was offered as Exhibit No. 1 that would help you solve that question?

A. No, sir, and even if it were, the formula presented in Exhibit No. 1 has never been directly applied to the four months ended December 31, 1907.

Q. You have already explained that the application of that to this period is, in your judgment, erroneous?

A. Yes, I cannot see a logical way to apply to 1907 something that happened in 1913.

1557 Q. Mr. Moore had you make some calculations on some of these exhibits—I don't recall the numbers of them now—which applied the court tariff rate for freight and the three cent rate for passengers as if the Commission tariff had been in force during that time and the two cent rate had been in force during that period: The result would be a diminution of the rate of return on the assumption that the same traffic did move under the Court tariff as would have moved had the other tariff been in force, and the same number of passengers did travel the same number of miles under the three cent rate that would have traveled the same

number of miles under the two cent rate: Are not those rather violent assumptions?

A. I don't think it is possible to estimate with any accuracy the results of changes in rates.

Mr. Moore:

Q. Do you know anything about the traffic conditions on the Frisco road in Arkansas?

A. Not in particular. That is a general answer.

Q. But you don't know anything about the traffic conditions on the Frisco in Arkansas?

A. No, sir, I cannot claim to have any specific knowledge.

Q. Or any part of that system at this time, do you?

A. No, sir.

Mr. Hill:

Q. I am speaking of the general proposition, Mr. Simson, whether it is possible to say that when you have the statistics of a cer-
1558 tain number of passengers traveling a certain number of miles for a given year under a three cent rate, to assume that under a two cent rate just exactly that same number of passengers would have traveled that same number of miles.

A. It is utterly impossible to carry out such an assumption. There is no basis for such an assumption.

Q. Is the same true of freight?

A. I would say probably, although freight is likely less subject, due to money conditions—that is, freight won't take an excursion at a less rate, or won't travel at a less rate purely because of the lesser rate.

Q. That is true, but is it not a fact that if there is a change in rate, if they could get better rates in Memphis at a given time than they can in St. Louis, when the traffic is moved——

A. It undoubtedly affects the direction of traffic and, therefore, the earnings of particular portions of the line.

Q. And the ton mileage?

A. The ton miles as well.

Q. On reading over your testimony you called my attention to an answer that you made at page 1253 of the record in regard to Exhibit R.

A. The answer is on page 1254, but the question is on page 1253.

Q. I wish you would explain if there is an error in that
1559 and if so, what it is.

A. Referring to Exhibit R Judge Moore asked me as to what portion of the amount of $7,638.46 applied to cotton. My answer was that $569.43 did. That is not true. $569.43 was the proportion of $7,276.04 that applied to cotton. The proportion that applied to the cotton of the $7,638.46 was $14,346.12, or more than the total, by reason of some red figures or reverse figures in the column above.

Q. The amount of cotton that is affected by this exhibit, however, is——

A. The amount of revenue that has been credited back due to the revision of method on account of the adjustment of the cotton balance is $569.43.

Q. And that is what you thought he was asking you about?

A. Yes, sir.

Q. I believe that was what was really intended.

Recross-examination.

By Mr. Moore:

Q. Mr. Simson, were you ever a traffic man?

A. No, sir.

Q. You have no knowledge, then, of traffic conditions, or the effect that differences in rate might have, based upon any experience as a traffic man?

A. Not on any experience, no, sir.

Q. Have you any knowledge or opinion as to the effect of the stimulation of traffic that might, as you assume, result from
1560 reduced rates that would overcome a reduction of 33⅓% of the passenger rate and keep the Company's revenues whole on that class of traffic?

A. I don't know the effect, to what extent a reduced — can increase traffic. It adds some stimulation to it, especially passenger traffic.

Q. Is not your statement on that subject made a few moments ago to Judge Hill simply a matter of conjecture, without any knowledge based on any experience or any connection with traffic of that class?

A. I have never examined or made any statistics from reliable data on the matter, and it is general knowledge.

Q. Have you read the exhibit in this case bearing on that subject?

A. Which exhibit is that?

Q. Exhibit No. 42 I think is the one in which statistics are given.

A. I guess that is the one I haven't got; I don't know.

Q. Yes, it is Exhibit No. 42: Have you ever seen it?

A. May I see it? (After examination of exhibit) I don't believe I have ever seen it. No, I have not seen this exhibit; I have not read it.

Q. Mr. Simson you criticized the formula which is Exhibit No. 1 in this case: Have you ever examined that formula with care and analyzed it so you are prepared to discuss its provisions and the application of those provisions?

A. So far as it was necessary for me to in order to form a general opinion, yes. I have not analyzed and discussed all of its
1561 provisions. There are certain matters that came to my attention that provided bases for subdivisions that I did not think were such as I would care to accept, and on that I based my opinion.

Q. Does it not require a knowledge of operating conditions and experience in operating railroads, to enable one to determine the proper method of apportioning the cost of the different branches of traffic? I mean the cost of traffic entering the different branches of service.

A. It certainly requires some knowledge of such matters to be able to apportion them properly.

Q. Does it not require a knowledge based upon experience, and a study on the ground in the actual operation, to qualify one to pass on a proposition of that sort?

A. I have had some such in an observing capacity.

Q. You have had none in an actual experimental capacity have you?

A. I have never been an operating official.

Q. You have never been a superintendent of a railroad?

A. No, sir.

Q. I judge from your testimony in this case that you have never held a position that gave you any connection with the actual operation of a railroad?

A. Only in an observing capacity.

Q. Your experience has been in the accounting department?

A. Yes, sir.

Q. Mr. Ludlam, who I understand is a member, the head
1562 member of the firm of Haskins & Sells, of which firm you are a partner——

A. He is one of the senior partners.

Q. —testified in the Iron Mountain case that the distribution of cost was a matter to be determined, he thought, by accountants, but in order to enable them to make a distribution it was necessary for them to obtain information from operating officials.

A. Yes, sir.

Q. Do you agree to that?

A. I think you have to have the results of operation whether you obtain them direct from operating officials, or by observation, or otherwise, so long as you obtain proper information. I think that is all that is necessary, or all he meant.

Q. Let us assume he did mean that: Have you obtained such information from operating officials and men who are actually engaged in the work?

A. Not necessarily directly from officials.

Q. Would you undertake to distribute the cost of the operation of an industrial plant without obtaining all information from the operating officials connected with that industry as to the cost of the several branches of the service?

A. I would not undertake it without a study of the subject. Whom I might call upon for information would depend upon the situation that I found. I might find that the books, records and statistics were ample to meet the needs without any further consultation.

1563 Q. Is it not the practice of cost accountants in doing work of that sort, and in ascertaining, assigning and separating the cost of operation of an industry between the various branch- to obtain information as to the costs of the several branches or departments of service from those who are skilled in their operation and experienced in operating the plant, also as to the conditions that accompany the operation and surround it?

A. My experience in dealing with superintendents of operation is that they rarely know much about costs.

Q. They know more than you do, don't they?

A. No, I don't think they do, about costs. They may know more about the results and about the physical operation and conditions.

Q. And causes?

A. And causes, and they see the result in concrete effects, but when you speak of costs as a running proposition they rarely know very much about it.

Q. They do know, though, more than a stranger to the business about the causes which contribute to the cost?

A. Yes, sir. I don't think I am a stranger to the railroad business.

Q. Mr. Ludlam also testified on pages 1311 and 1312 of the printed record in the Iron Mountain case, that if he were called upon by a railroad, or by an industrial or manufacturing plant, a manufacturing plant or a business house, to put in a cost accounting system, that he would first study the situation carefully, or as nearly accurately as possible, to determine the actual cost of the dif-
1564 ferent products, or the various kinds of products, that the factory might produce, that would embrace, first, necessary accounting forms, including labor reports, material and all the different elements that would enter into a question of costs. Would it be necessary to obtain that information from operating officials?

A. If I were constructing a formula, yes.

Q. You are criticising one that was constructed by a number of railroad officials who were selected for that purpose because of the fact that they had had great experience, and were assumed to possess a large amount of skill in connection with the operation of railroads. Do you think you know as much about the contributing causes of the expense accruing in the various branches of service as those operating men and accounting men who co-operated with them in preparing this formula, Exhibit No. 1?

A. I have great respect for all of the gentlemen who contributed to that formula, but I must disagree with them in certain rather important features.

Q. In the extract I read you a while ago from the testimony of Mr. Ludlam he said further that he would obtain this information as to operating conditions from actual investigation of the particular business to which his attention was invited: Did you do that with regard to railroad operation?

A. I examined the exhibits presented and have, so far as was available, obtained the statistical information other than that contained in the exhibits and have worked, so far as figures are concerned, from those things.

1565 Q. But that is not an answer to my question. You have examined the results of their work, you have examined the formula, but it is necessary, according to the views of Mr. Ludlam that are expressed in this record, for the men who prepared that formula to study actual operating conditions.

A. Yes, sir.

Q. You could not learn actual operating conditions from studying a formula which is simply the result of the opinion of those men who prepared that formula, could you?

A. I don't follow what they did, of course. I have no way of knowing what their meetings produced; how much of a compromise is represented in the ideas of the men who formed the formula, or how much difference of opinion there still exists between the individual members of that Committee and the will of the majority?

Q. That is not an answer to my question, but we will pass that, and ask you if you don't know as a matter of universal knowledge that it requires a high degree of skill, based upon ample experience, to qualify any man, I don't care how bright he may be, to operate a railroad, or to pass upon and form a correct opinion upon the causes which contribute to produce the different results from that operation whether it is in regard to cost, or whether it is in regard to the relation of one branch or one class of service to another, and are not those things so interdependent that a man must have a technical knowledge (to use a word you used yesterday in regard to Mr. Berry's tables) to qualify him or enable him to pass upon those propositions? Is not that a fact that is universally conceded?

1566 A. It must require knowledge, of course.

Q. Must it not require something more than academic knowledge; does it not require a knowledge based upon actual experience?

A. Yes, I think so.

Q. How long ago was your last railroad experience?

A. 1901; that is, directly employed.

Mr. Hill: We now introduce testimony in this case, pursuant to previous stipulation, of the following parts of the evidence of the Iron Mountain Case as taken from the printed record in the Supreme Court of the United States. By consent it is considered as if set forth at length in the record.

R. B. Parker, Volume 2, page 1161:

The last paragraph at the bottom of page 1164 to the first paragraph at the top of page 1166.

Conway W. Hillman, Volume 2, page 1479; last paragraph, and pages 1480, 1481, 1509 commencing at the fourth paragraph, middle of the paragraph, to 1510.

M. L. Byers; Volume 2, 1695. Second paragraph on 1696, last paragraph 169, through page 1703.

Frank Nay, Volume 2. Commencing with 5th paragraph page 1823, 8th paragraph page 1825.

2098.

D. L. McHugh, Volume 2. Last paragraph page 2100.

Mord Roberts, Volume 2. 2106 to last paragraph 2108; last paragraph 2111 to second paragraph 2112.

K. P. Alexander, Volume 2, page 2158 to page 2160.

J. A. Simmons, Volume 2, page 2168, 6th paragraph
1567 bottom of that page; eighth paragraph from bottom of page 2170 to last paragraph on page 2172.

D. Hartson: Volume 2. Page 2195 to end of first paragraph on page 2196, and second paragraph page 2201 to cross-examination on that page.

Mr. Hill: We close here.

Mr. Moore: The plaintiff will use the following parts of the record:

From the evidence of C. J. McPherson, Volume 1, page 22, 3rd and 4th answers; page 321, the 9th paragraph; and again beginning at the last paragraph on page 321, to the end of the 2nd paragraph on page 322; beginning at last paragraph on page 323 to the end of 10th paragraph on page 324; beginning at fifth paragraph page 325 to the bottom of that page.

Frank E. Ward: Volume 1, page 722 to the end of 6th paragraph on page 723; paragraphs 6, 7, 8, 9, and 10, pages 728.

Charles S. Ludlam: Volume 2. Beginning at 3rd paragraph page 1309, reading down to the next to the last paragraph on page 1311; page 1321 beginning at the second from the last paragraph down to the 3rd paragraph from the bottom on page 1322.

Mr. Hill: I may want to put in something on those particular witnesses. If I do, I will give you notice of it before the argument. I do not want anything additional, but I may want to put in something from these witnesses you just named.

At this point recess was had until 2 o'clock P. M.

1568 After recess on Friday, November 13, 1914, the following proceedings were had at two o'clock P. M.

Thereupon the complainant on its behalf introduced the following evidence in rebuttal:

W. E. Symons, recalled, testified on behalf of the complainant in rebuttal, as follows:

Direct examination.

By Mr. Moore:

Q. Mr. Symons, what does the term "potentiality" as applied to engines denote?

A. The term "potentiality" as applied to engines denotes power. That is the general meaning of the term in its application in many ways, but specifically so to a locomotive.

Q. What is horse power, just explain what horse power is, tractive power in connection with locomotives in its effect upon operation?

A. Horse power is the force or power required to move a certain weight through space in a certain length of time, as applied to a locomotive it is the product of tractive power and speed combined, the tractive power of a locomotive being the power of adhesion delivered at the rim of the driving wheels on the rail and is governed by the weight on the drivers which provides or produces the adhesion or contact between the wheels and the rail.

1569 It is ordinarily in a ratio of about 4 to 1; that is to say, a locomotive with 100,000 pounds on the driving wheels of

static weight or load would have a tractive power of about 25,000 pounds, the amount varying a little as between passenger, freight and switch engines. In freight engines it is usually about 4 to 1.

Horse power being the product of tractive power and speed, it therefore necessarily follows that an engine starting from a state of rest will produce its maximum tractive power on starting, and, as it is accelerated into speed the tractive power will decrease but the horse power will increase; the loss or reduction in tractive power compensating or offsetting the increased power due to speed resulting in maintaining practically an unbroken potentiality, or even potentiality, or power developed.

Q. What effect does speed, or increased speed, I might say, have upon the pulling power of an engine?

A. As the speed increases, or is increased, the engine must of necessity overcome certain elements that have a retarding effect, and the drain on the boiler to supply steam becomes greater, and it is necessary to reduce the amount of steam admitted to the cylinders. This results in a reduction of tractive power, which, however, is offset by the increase in horse power, as the horse power is a product of tractive power and speed, and is usually, or can usually, be determined within certain limits by multiplying the tractive
1570 power by speed or miles per hour, and then dividing the product by the constant or arbitrary figure of 375.

The horse-power will increase from a speed of five miles per hour up to a point where the piston speed of the locomotive is about 700 feet per minute. It will remain practically constant between a piston speed of 700 feet and 1,000 feet per minute, and beyond that speed the horse-power would be slightly reduced, although the potentiality of the engine would not be affected.

I have here some charts which I had made for the purpose of illustrating the particular question that I have just answered, and I will hand one to Judge Hill and one to yourself, Judge Moore.

Q. Will you file that as your Exhibit No. 54?

Mr. Hill: Of what is this in rebuttal, Mr. Moore?

Mr. Moore: Mr. Mayer's testimony in regard to the performance of engines.

Mr. Hill. It is not in rebuttal of anything that I asked him.

Mr. Moore: I think it is.

Q. That exhibit has reference to the effect of speed, does it not?

A. Yes, sir. The first exhibit shows the reduction in tractive power due to speed. It is shown graphically on the chart.

Starting at a speed of 5 miles per hour the engine had a
1571 net tractive power of about 23,000 pounds.

At 20 miles per hour the engine had a net tractive power of about 18,500 pounds.

At 30 miles per hour the engine had a net tractive power of about 15,000 pounds.

At 40 miles per hour the engine had a net tractive power of 11,000 pounds, and at 60 miles per hour the engine had a net tractive power of about 5,900 pounds, although the potentiality of the engine was not necessarily affected.

This point is clearly illustrated in the next exhibit which shows the combination of horse-power in connection with speed.

Q. Mr. Symons, I think you have fully explained the effect of speed. I want now to call your attention to the causes that obstruct or that create resistance to the tractive power of engines. Take that up, please, and explain what it is, what it consists of and what effect it has.

A. The principal elements which must be overcome by moving bodies, which also applies to railway trains, is, primarily, atmospheric pressure which increases theoretically on about the proportion to the square of the velocity of the object moving against the atmosphere. With railway trains, however, particularly freight—I will take first, there are other features—particularly a long freight train which is made up of what is called a mixed consist of box cars, coal cars and some flat cars, there might be 40 or 50 cars in the
1572 train, and if there were three or four or six flat cars at different places in the train it would result in gaps or breaks in the train, thus exposing the square of the diameter of the next box car to more wind pressure or resisting force that a shorter train would have at one point only. And in rounding curves, or even on straight track, but more so where the road is crooked, the wind exerts a pressure on the exposed surface of all of the cars in the train, particularly those where the ends are more exposed on account of the presence of flat cars. Doors are sometimes left open in box cars, which causes a great deal of extra wind pressure that must be overcome.

The wind also has a further effect on train movement that affects the tractive power of engines in that it picks up foreign matter, such as grass, which is caught under the driving wheels of the engine and destroys the adhesion between the driving wheels and the rail, the principle being the same as if one should step on a banana or apple peeling on the street, although not in so great a degree. This causes the engines to slip and thereby to lose temporarily—temporarily their tractive power is destroyed, causing the engine to slip its drivers.

Again, in foggy weather the rails become moist on the surface and cause the engines to slip. This, in railway parlance, is called a "bad rail." The real meaning is that it is a bad rail for the engine to operate upon, and when used in this sense the term does not refer
to the physical condition of the rail, whether it is new, or old,
1573 or badly worn, but that the surface of it is in bad condition, causing the locomotive to slip badly.

Mr. Hill: Is not that what is called "wet rail?"

A. The term "wet" is used at times, but the general term "bad rail" covers both the wet rail and moisture from fogs, too.

Q. They mean the same thing?

A. Yes, except that the term "bad rail" would cover such conditions as come from other causes besides rain, while "wet rail" would be from fog or mist only.

Mr. Moore:

Q. What effect would variation in temperature have?

A. Variation in temperature has a great deal of effect on train movement. In cold weather, or in cool weather, the lubricating oils ordinarily used, and that are generally used, give the best results and lubrication is more effective at temperatures around 70 to 80 degrees than at any other, and when trains are in motion and have been hauled for some few miles as a rule, as a result of the friction, even if lubrication is fairly good, there will be a slight rise in temperature so that the resistance on account of friction is reduced to a minimum, but when trains stop, either at stations for a considerable time, as a freight train would, or cars stand at a yard or terminal when the weather is cool, say around thirty above zero, or near freezing point, the oil gets cold and sticky and the frictional resistance is materially increased, so much so that an engine
1574 cannot haul anywhere near the number of tons, or the number of cars, that it could in warm weather.

It is customary to reduce the number of cars and tons on this account, and still it does not reduce the potentiality of the engine; in fact, when properly done, as it usually is, the efficiency of the engine, or its potentiality, would be just as great in handling a less number of loads.

Q. Have you had any experience in the rating of engines with reference to operating them on railroads?

A. I have, sir.

Q. Do you know what the purpose of that is?

A. Primarily, as a division officer on a railway, I was constantly in touch with the superintendent with reference to engine ratings which were made and handed down to us by our higher officers.

Then, as a superintendent of motive power, which position I filled for more than one line, I had the designing of locomotives come within the province of my duties, and on one line where I was for several years I also had the purchase of them, and the design, acquisition and use of them was always with a view of performing a certain duty, a certain kind of service, and the tractive power or pulling capacity was determined upon to meet the needs of the road, and then we established a rating for the engines after they were received.

As a superintendent of machinery I had the principal voice in establishing that rating on several railways, both in the
1575 north and in the south. I always established the rating—and I think it is generally customary to do that, particularly for freight engines—to establish as the maximum the load the engines can haul at a minimum speed of ten miles per hour, or less, over the ruling grade of the division, and that rating was published in the time-cards and frequently made the subject of a bulletin, and that was to be adhered to or attained whenever possible to do it under normal conditions. In other words, it was held up as a high standard that was to be reached when the operating conditions would permit, and there was a volume of traffic whereby it could be done.

Q. Do the size and weight of an engine represent its potentiality?

A. Yes, the size and weight, size and weight being synonymous terms, the greater the weight the greater the tractive power.

The element of speed, however, that produces horse-power——

Q. I eliminate the matter of speed from my question. The question is whether the size and weight reflect the power of the engine?

A. Yes, the size and weight of the engine reflect its potentiality.

Q. Does it do that closely or only in a remote way?

1576 A. Why, it is very close. It follows in a very close ratio.

Q. Is this relatively so as between freight and passenger engines, all classes of engines?

A. Yes, relatively so. Of course, different ratios would obtain for the two—yes.

Cross-examination.

By Mr. Hill:

Q. Mr. Symons, Mr. Hamilton kindly hands me St. Louis & San Francisco Railroad Company time-table No. 18 for the Eastern Division, taking effect Sunday, November 1, 1907, 1 o'clock, for the information and government of employes only: What does that mean, that last line—"for the information and government of employes only?"

A. One of the things that is meant, I think, Judge Hill, is the fact that some years ago there were some cases wherein people got hold of time-cards and went to the station to meet trains by a time shown on the time card, and found the time had been changed, so that was put on to show it was an official document and did not concern the public that is, most of the things in it.

Q. That is true as to the information, but is that true as to the government of the employes? It says, "for the information and government of employes only."

A. Well, it is not intended to control any one else, but the

1577 employes, I think.

Q. Is it intended to control employes?

A. Yes, it is for their information and control.

Q. I am not familiar with this, but somewhere in here, which you can turn to in a moment, are the engine ratings. At page 15 I find here "Tonnage class of engines at different districts of the line, westbound," and I presume the corresponding district on the same line eastbound: Is that correct?

A. I think so, yes, sir.

Q. If not corresponding districts, similar districts in the other direction. What does that mean?

A. That means that over the district governed, to which those figures apply, the engine is supposed, under normal conditions, to take the amount of tonnage shown if it is there to go and if the elements do not prevent it from doing so. In other words, that is a maximum mark to work to when it is practical to do so.

Q. You might call that the ideal condition?

A. Yes, sir.

Q. On that same page are some special instructions, which are supposed to be the exceptions when the general directions contained in the tonnage clause do not apply, are they not?

Q. Read it.

A. Yes, although the instructions here with reference to——

A. Section 5, rule 5, says:

1578 "Under exceptionally bad weather or rail conditions when the trainmaster's office cannot be reached, 10% less than the published rating may be handled, and the circumstances reported to the superintendent."

That is intended to cover a situation that may arise when the conductor and engineer cannot reach the office to communicate with the officer who is authorized to change that, or the officer that they should reach, and in such case they reduce their train themselves.

Q. Within these limits?

A. Within those limits, and if the weather or other conditions should get much worse, then they would cut 10% more if they came to another harder hill, or it should begin to snow and blow.

Q. That would be covered by these instructions?

A. Yes, the same underlying principle would apply, although while there is no mention of it made there, the trainmaster or superintendent who is contemplated there, when bad weather comes on usually issues a bulletin governing general reduction in tonnage of trains, usually providing that owing to zero weather trains may be reduced 10, 15 or 20 per cent.

Q. But in the absence of instructions from the superintendent these instructions that appear on page 15 would govern?

A. Those are general and would govern, yes, sir.

Q. Then I assume that the superintendent has authority to make exceptions to the general proposition that is contained in those tonnage ratings?

A. Yes, and coming on winter time he usually puts up a bulletin that allows a certain amount of fluctuation in that

1579 field.

Q. All of this that we are now discussing applies to freight, does it not?

A. Yes, sir.

Q. None of these instructions apply to passenger trains?

A. No, sir.

Q. It is in testimony here that the passenger traffic is fairly constant and that the load is fairly constant: That is your experience, is it not?

A. Yes, that is true and that is handled this way: When the adverse conditions come about that would justify a reduction——

—. By that you mean on freight?

A. Yes. Then in passenger service, owing to the fact that the train must always go, we double head in winter time, put on another engine, because they cannot reduce the tonnage on a passenger train.

Q. The passenger train runs practically the same all the time?

A. Yes, sir.

Q. Of course, I am not speaking of very minute accuracy, but as

a general proposition the passenger train runs with the same number of coaches all the time?

A. Yes, and they do not wait to see how many passengers are going before making up the train, but go at the published time shown, and then if the weather is so bad that the train might not make its connection at the other end of the line and seriously disturb other
1580 schedules, they put on another engine.

Q. That is the only way in which this proposition is taken care of on the passenger side?

A. Yes, sir.

Q. That would be a very infrequent thing in Arkansas?

A. It would happen in cold weather. It gets down to zero.

Most roads doing any considerable volume of business have, in what is called their fast freight service, or engines available for fast freight service, what is commonly called a compromise engine that is a little too large for the ordinary passenger service and still the driving wheels are a little bit high for what is called drag freight service. In extremely bad weather, or on excursions, or any other condition requiring an extra heavy passenger train, that engine can be put on and handle the passenger train to save double-heading the passenger train.

Q. Is there much of that done in Arkansas?

A. I don't think there is a great amount in the southwestern country.

Q. We might consider that what we call in these rate cases a "negligible" quantity, as far as Arkansas is concerned?

A. I would not say how much, but wherever it gets down near zero weather that is a very convenient and feasible way of covering the situation, and save having two engine crews on a passenger
1581 train, because if you put two engines on a passenger train and do not run two back it materially disturbs the division or balance of your power, so you can put on a big engine and run it through and not disturb that.

Q. They take occasionally a big freight engine and put it on a passenger car?

A. A big engine which on most roads is called a fast express engine, but it is suitable for fast freight.

Mr. Moore: Is that a big freight engine?

A. No, it is not one of the extremely large engines that are used for drag trains. It is an engine suitable for fast freight service, such as bananas or a heavy stock train.

Mr. Hill:

Q. Are any of those compromise engines rated in this time-card?

A. I think you would probably find that they are, although I could not pick them out myself.

Q. What I am getting at is this——

A. I might show you——

Q. I understand your proposition, but that is a proposition that is applied to extremely cold weather, particularly along the northern routes where they have zero weather more continuously?

A. It is more pronounced and emphasized there, but anywhere where the temperature drops down to zero that is a factor that must be recognized and a consideration that must be met.

Q. How often do we get down around zero in Arkansas?

1582 A. I couldn't say. Not as often as they do in Manitoba, but oftener than they do in Florida, of course, or southwestern Texas. I have had to double-head trains out of San Antonio myself while I was an officer of the road.

Q. On account of the zero weather?

A. Not wholly, but it was cold weather, and then some extra coaches combined.

Q. That is an extreme case, and as far as Arkansas is concerned we might consider it as negligible?

A. I would not say it is negligible. I would not want to say that because I recall that the roads down through this part of Missouri and the edge of Arkansas are sometimes troubled with snow in zero weather, and when snow comes along, although it may not last many days, it is a very important factor in train movement; in fact, they may have to reduce the trains in freight service 50% or more to get along in snow and zero weather.

Q. That occurs in Arkansas about once in twenty-five years?

A. You are much better able to judge than I, but I feel quite safe in my position with reference to the effect when it does come.

Q. Take the Red River branch of the Frisco in Arkansas: How often do you think that has occurred on that branch?

A. Well, I couldn't —. When I was in north Texas, say 100 miles south of there, we occasionally had a little snow, not much,

1583 but we frequently had a drop in temperature down to around freezing that made the trains pull so hard that we had to give freight trains less tonnage, and, while we did not double-head our passenger trains, it was very noticeable that we burned more fuel in order to make the schedule time, because to maintain the efficiency of the engines we had to exert more power to do the same work.

Q. If I recall correctly the testimony of Mr. Hamilton in this case it was to this effect: That the passenger traffic on the Frisco road in Arkansas was fairly constant, and that there were practically no changes through a series of years on the passenger trains in the state running over the same division. (To Mr. Hamilton:) Is not that practically about correct, Mr. Hamilton?

Mr. Hamilton: No, sir. My statement was that the number of passenger trains per mile of road per day had remained constant.

Mr. Hill: That is a better way of putting the idea I was trying to convey.

Q. You would not dispute the correctness of that statement, would you, Mr. Symons?

A. No; I think as Mr. Hamilton has qualified it, that probably is true, but that, of course, does not have anything to do with the elements which a train will meet with in movement.

Q. I understand, but the elements which it might meet

1584 with in movement would be more correct, would it not?

A. I think it should be said that it does meet with these

elements in movement. The wind blows as hard in Arkansas as it does in Oklahoma.

Q. No, I must disagree with you decidedly on that proposition. I have lived in Arkansas for a great many years and I have been in Oklahoma a great deal. I won't dispute with you on a technical proposition, Mr. Symons, but I most emphatically dispute you on that.

A. I am quite sure Judge Hill's knowledge of weather conditions in Arkansas *are* much better than mine, but if the wind blows thirty miles an hour in Arkansas, I am quite positive it will retard a train movement just as much as if it blew thirty miles an hour in Missouri or in Illinois.

Q. I don't dispute that, but whether it blows thirty miles or sixty miles an hour, the fact remains that if during all this blowing of the winds the passenger traffic in Arkansas has been fairly constant for five years it would indicate that it has not cut a very great figure, would it not?

A. So far as traffic is concerned I should say yes.

Q. By "traffic" I mean the passenger trains, the number of cars that are carried by the locomotives.

A. I think so, but I think what we call the statistics of the locomotive performance would show that the pounds of fuel per train mile materially increase in the winter on account of these weather conditions.

1585 Q. I have no doubt of that, but that is not our proposition. It is necessarily more expensive to run a locomotive in winter just as it is more expensive to run a house in the winter time than it is in summer time on account of more fuel being needed, is it not?

A. Yes, and the engine slips more and wears out the drivers and tracks more.

Q. The winter is harder on a railroad just like it is on anybody else, on account of the cold weather?

A. You might say we have the maximum adverse conditions in winter time, and minimum in the spring and early fall.

Q. I think we can agree thoroughly on that. That is all, Mr. Symons.

1586 J. A. FRATES, a witness of lawful age, being duly produced, sworn and examined, testified on behalf of the complainant in rebuttal, as follows:

Direct examination.

By Mr. Moore:

Q. Please state your full name?

A. J. A. Frates.

Q. Are you connected with the St. Louis & San Francisco Railroad?

A. Yes; General Superintendent of the St. Louis & San Francisco Railroad, First District.

Q. What parts of the line or territory does that comprise?

A. That comprises the line from St. Louis to the Red River on the Central Division.

The line from Springfield to Kansas City, by way of Clinton, Missouri.

The line from Monett to Red River on the Southwestern Division, where we connect at Quanah with the Texas line.

The line from Beaumont Junction to Vernon, Texas.

The line from Enid, Oklahoma, to Waynoka, Oklahoma.

The Red River Division from Sapulpa to Red River, near Denison, and the part of the Red River Division extending from Ardmore, Oklahoma, to Hope, Arkansas; in all, something like 2,700 miles.

1587 Mr. Hill:

Q. About one-half of your system?

A. Yes, I think it is a little more than one-half of the system.

Mr. Moore:

Q. How long have you been with the Frisco road?

A. I have been with the Frisco Railroad about fourteen years. I have had a total railroad experience of thirty years.

Q. What branches of the service have you been employed in during that time?

A. First as telegraph operator, train dispatcher, chief train dispatcher——

Mr. Hill (to Mr. Moore): You need not go into that unless you want to. I do not question that Mr. Frates is qualified——

Mr. Moore: I would rather go into it.

A. (Continuing:) Assistant Superintendent, superintendent and general superintendent.

Q. Did you have any duties to perform in connection with the operation and rating of trains, rating of engines——

A. Yes, sir.

Q. —as train dispatcher and trainmaster?

A. Yes, I have had the direct duty of not only providing rating and making ratings, but supervising the ratings and approving the ratings, as well as carrying the responsibility for knowing that the ratings were fulfilled or carried out, on the Frisco Railroad and on other railroads.

1588 Q. What is the purpose of the rating of an engine in freight service as shown in the Frisco Company's time-cards?

A. The established ratings as shown on the working time-table is obtained by actual pulling tests under normal conditions, and represents the maximum tonnage that can be pulled over the ruling grade under normal conditions and a speed of ten miles per hour.

Q. Is it practicable to reach the maximum potentiality in the every day practical operations of a railroad?

A. We may reach the potentiality, the engine potentiality, but not reach the tonnage maximum. The conditions vary.

Q. State what causes those variations, please.

A. Well, to start in with, weather conditions are a very important

factor, high winds, head winds and cold weather. During the winter months it is a matter of impossibility to handle the full tonnage although the engine may be working to its full capacity, or even worked harder than she would be in good weather, to handle the same tonnage. In winter time in some cases, we would not be able to handle two-thirds of the tonnage with the engine working harder than it would work in the summer.

Q. And exerting its full efficiency?

A. And exerting its full efficiency.

Again, a heavy head wind would retard the movement of the train, reducing the speed to a point where it would be
1589 necessary to reduce the tonnage in order to make time.

Then the question of foggy weather making the rails damp and causing the engines to slip, probably on a heavy grade stalling the train, making it necessary to double the hill, and in order to avoid further doubles, perhaps reduce the tonnage so that you could get over the next hill that you come to without doubling and disorganizing the operating, which you usually do when you have to double a hill. The opposing trains would suffer if trains were doubling hills; that is, if it could be anticipated that they were going to do that.

So that the rail conditions enter into the loading of the trains, and very often make it necessary to reduce the loading.

Q. What have you found in your experience to be the effect of speed upon the tonnage of trains?

A. We have on every division what we call expedite trains, trains that handle high class freight, stock, meat, perishable of various kinds.

Q. Fruits, too, I suppose?

A. Fruits. Probably in Arkansas apples, strawberries and peaches.

Q. And bananas, too?

A. Yes, bananas also, but originating in Arkansas, the other fruits. In order to make the time that is necessary on those
1590 trains tonnage is sacrificed. In other words, if what we call a dead freight train, or a drag freight train, at ten miles an hour would pull, as a matter of illustration, 1,000 tons, to handle an expedite train we would probably have to reduce the tonnage one-half, depending on the speed required for the high class train.

Q. With the same engine?

A. With the same engine, and the same engine would be required to work just as hard in order to make the time with the high class train as it would with the full tonnage train, because the speed required of it would require the exertion.

Q. That is, it would be exerting the full power in both cases?

A. Yes, sir. In that connection, there is a loss of tonnage in picking up important freight along the road. As an illustration, we might start a train out of Fort Smith, eastbound, and have four or five cars of apples to pick up at an intermediate station: It would be necessary to start that train out of Fort Smith lighter sufficient

to pick up these additional cars of perishable freight, and although that particular train would handle its maximum tonnage over a certain part of the road, it would go over another part of the line without having its maximum tonnage.

The same would apply if a train would leave a terminal with four or five cars of stock to set out along the line. After
1591 setting out this stock it frequently occurs that there are not cars there to pick up and take the place of the cars set out. Therefore, the engine would have to move with less tonnage from the point where it set the cars out to the terminal, and those conditions make it impossible to get a full train load under all conditions.

Q. Does the balance of traffic in any way affect the tonnage of trains moving in opposite directions?

A. Yes, sir. The practice is to assign a certain number of engines to a certain district to move all of the business on that district. The volume of traffic may be heavy in one direction than in the other. It naturally follows that the trains moving in the direction of volume would move loaded, and the train moving in the opposite direction of volume would have to move either light or with reduced tonnage, and that is a very frequent occurrence. It is seldom that the business, the traffic, is evenly balanced so as to prevent running light trains either in one direction or in the other.

Q. In those cases I suppose an engine whose size is adapted to a larger volume of traffic is necessary to operate the division?

A. Yes. We would have to run a big engine in the opposite direction with a heavy traffic, with a light load, but the big engine would be necessary to return with the full load.

1592 Q. That is always an incident of freight service, I suppose?

A. Yes, and that applies every day on most of the division, and applies on our local trains. We may start a local train out of a terminal with probably four or five loads which is set out on its division. It may pick up at various local stations along the line loads until it reaches some certain point where it will get its maximum load, and probably handle that for possibly two divisions, or two stations, and then reduce again and get into the terminal with less than its load, but an engine of a certain tractive power would be needed in order to meet the maximum requirements of that particular division.

Q. Something was said in Mr. Symons' testimony in regard to double-headers, or the use of extra engines, in passenger service: Do you find that necessary on the Frisco road?

A. Yes, we have had a great deal of experience along those lines. I recall very vividly in an abnormal condition that existed in February, 1912, where we were compelled to practically double-head every passenger train we had on certain divisions, simply because the weather conditions were so adverse that one engine was unable to pull its ordinary train. That applied particularly between St. Louis and Monett, and to some extent between Fort Smith and Monett.

There is another thing that I want to bring in and that is
1593 the practice of adjusting the power according to its weight and size to the divisions where the demands of the traffic would justfy the particular size of engine.

In other words, on the A. & A. branch of the Red River Division where the track is comparatively level, a small engine will pull as much or more tonnage than one of the largest engines we have on the Central Division where the grade conditions are not as favorable, and we try, and do assign our power so as to meet those conditions and fit in with those conditions.

Q. I was just going to ask you what is the practice of the Company in the assignment of its motive power in the various divisions, with reference to the classes of service.

A. I believe I explained that, and in addition to the general superintendent being responsible for those conditions, we have on the Frisco Railroad a superintendent of locomotive efficiency who specializes on that particular feature. In addition to being in direct charge of that he has on each division an assistant, who is called an assistant superintendent of local fuel efficiency, and who watches that particular feature.

Q. Then you attempt to fit your engines to what is required of them under the different service conditions on the various parts of the line, do you?

A. Yes, sir.

Q. You keep these officials you speak of for that pur-
1594 pose?

A. Yes, that is one of their important duties.

Q. That is done constantly, is it?

A. Yes, it is done constantly, and, as an example, on the Central Division in Arkansas recently we were strengthening some bridges and were able to put heavier power there. As soon as the bridges were strengthened the heavier power was transferred to that point and we, of course, gained in efficiency by putting the heavier engines in.

Q. Is that true in both freight and passenger?

A. Yes, sir, and in this particular case on the Central Division it applied to both freight and passenger, because we put heavier engines on both the freight and passenger service on those lines in that division.

Q. State the conditions with respect to these matters we are speaking of, in regard to loading local trains.

A. Well, it is impossible to get the maximum tonnage on a local freight train. It has to be sacrificed in order to make time and meet the requirements of the service.

Q. You say in order to make time?

A. Yes, that is the one important factor. Under the Interstate Commerce——

Q. Is there not a reference to the readiness to serve included in that?

A. What is that?

1595 Q. The readiness to serve?

A. Yes, I was going to explain that. In regard to time,

under the Interstate Commerce provision a crew cannot be on duty to exceed sixteen hours. A local train starting from a terminal and going over the road to another terminal in required to load and unload local freight and to switch. If they were loaded down to the maximum tonnage, with the delays that they meet at stations which are incident to the work they perform, and making very slow time between stations, they would not be able to get over the division inside of the sixteen hours.

In order to permit them to make the time they are not loaded to the full capacity except, possibly, between one or two stations. They are given less than the engine rating so that when they are moved from one station to the other they can go along at a pretty good rate of speed.

Another factor in regard to the local train is the fact that it handles the short loads, the loads for local stations. They are accumulated at the terminal and put into the local train, and the local train peddles them out at the various stations along the road, and also assembles and picks up the loads originating at the local stations and moves them to the terminal, except perishable, or important high class freight, which is picked up by the through freight trains. But the ordinary dead freight, and sometimes perishable where they can get it into the terminal ahead of the fast train, is
1596 picked up by the locals. It means that a great deal more time is consumed by a local train in doing its work at local stations than is consumed by a through train, and by reason of this service the train must be favored as to tonnage.

Q. Do you fit your engines with reference to power to these conditions of local service that you speak of?

A. Yes, the engines are selected to meet the requirements and the conditions.

Q. They have to have the maximum power that is necessary for that purpose?

A. Yes. In regard to passenger engines: It is a good practice to assign an engine to passenger service with certain reserve power. It would not do to put an engine on a passenger train that was worked to its maximum, because if the weather conditions, or the engine was called on to handle an extra car, or something of that kind, unless there was some reserve power the passenger traffic would not be handled satisfactorily. For that reason we usually assign power to passenger engines with reserve power to meet conditions that may come up.

Q. These conditions requiring that maximum power apply to both freight and passenger service, do they?

A. I did not understand that.

Q. These conditions requiring the maximum power apply to both freight and passenger service, do they? I mean, the passenger train that you speak of is like the condition you speak of a while
1597 ago where you have to pick up cars. For instance, to illustrate your explanation of a through train that wanted to pick up cars between Fort Smith and some northern point: If it started out from Fort Smith with its maximum power it would have to have

that power to handle the business. I want to know if those conditions are common to both freight and passenger service?

A. Yes, but more so to the freight service. We are often called upon to handle an extra sleeping car, baggage car, or otherwise.

Q. And dining car?

A. Passenger train. And again, an engine in passenger service may handle in one direction a six car train and in the other direction it may handle an eight car train. Therefore, the engine of the six car train has to have enough excess power to handle the eight car train in the opposite direction.

Q. Mr. Mayer, the witness for the state in this case, referred to the fact that on some of the passenger trains the engine pulled five cars in one direction and in the opposite direction six cars. I think that was on the Central Division, trains No. 4 and No. 6, between Fort Smith and Monett.

A. That is probably true. Trains No. 4 and No. 6 do not handle the same number of cars. The requirement does not exist for the same number of cars for both trains. They do not handle the same
1598 number of cars in winter time that they do in the summer time. The summer travel is heavy from Texas and it requires more equipment. We have trains running in opposite directions, or in the same direction, in which the number of cars vary, but the same engines handle all of those trains. The "chain gang," as we call it, engines rotate from one train to another.

There is another point in regard to the loading of trains: We have connections with different railroads at various points, and connecting railroads frequently deliver at these junction points cars of perishable — which justify special service. Regardless of whether the tonnage is available or not those trains have to move, and we move trains over the division in cases of that kind without having the maximum tonnage that the engine could handle, but the freight is high class and justifies the special movement. As an example, if a connection should deliver as many as ten cars of stock we would run a special train to handle those ten cars of stock rather than to leave them lay there until some——

Q. Freight service is chargeable with the size engine——

A. Yes, because that engine in one direction may handle only ten cars of stock and in returning it may bring a full train.

Q. The regulations contained in the time-card provide that "Under exceptionally bad weather or rail conditions, when the trainmaster's office cannot be reached, 10% less than the published rating may be
1599 handled, and the circumstances reported to the superintendent," and also that the tonnage of a train may be permitted to vary ten tons under or fifteen tons over the published rating.

How are those rules applied, are they absolutely rigid rules, or how are they applied with reference to the service conditions?

A. The intention of that rule is to authorize a conductor who is out on the road out of reach of the assistant superintendent, by reason of wire trouble or some other obstacle that would prevent com-

munication, to reduce his train if the weather conditions justify it. That mentions 10% and has reference to ordinary changes in weather conditions, but does not refer to any abnormal condition. If the condition- were abnormal the conductor would be expected to reduce his train sufficient to get it over the road properly. He would be expected to use his judgment in those matters. That is not intended as a hard and fast rule.

It is a very unusual occurrence for an obstruction to take place that would shut off communication between the assistant superintendent, from the dispatcher's office, and the conductor, and when communication is open it is the general practice to dictate to the conductors, either by bulletin or message, to reduce their trains to fit the conditions. Usually they are told to reduce their trains two or three hundred tons, according to weather conditions, and the assistant superintendent, who watches the movement of all the
1600 trains, is able to judge the amount that the train would be reduced, and that is usually done by direct instructions. But in case the assistant superintendent cannot be reached then the conductor does it, and that is the intention of that rule, so that he will do it without being told.

Q. Have you found in your experience that the weight of an engine reflects its tractive power?

A. Absolutely, yes. The heavier the loading on the drivers the greater the tractive power; the greater the adhesion, and for that reason the greater the pulling capacity of the engine.

Q. Is the size of the engines on the Frisco road conditioned to the weight and speed of the train they are expected to pull, both in freight and passenger service?

A. Yes, as near as experience and practice could demonstrate. We select an engine with sufficient tractive power to take care of the requirements. If we put an engine on a train with more tractive power than was necessary it would be a waste of power, and therefore a waste of money, because power costs money. In the interest of economy we try to apply what power is necessary and not to apply any more than is absolutely necessary to take care of the requirements. In other words, it would be a waste of money to put a large engine on a branch line where the loading was scarce and we would not have use, under those conditions, for all the tractive power we had. It would be a waste of money to put an engine with
1601 surplus tractive power, under those conditions. We try to adjust the tractive power to the actual requirement.

Q. The economies of operation are included in that proposition, are they not?

A. Largely so, yes, sir.

Q. Is not this rating of engines in the time-card that we have been speaking of designed very largely as a model of efficiency for the purpose of producing the greatest economy in the operation of the road and in transporting freight?

A. Yes, it is a measure of what can be done under normal conditions, based on drag or dead freight rating or tonnage, and we aim to

get every train that we can to pull that maximum tonnage but no more. There are a great many——

Q. You mean weight and speed? You said weight awhile ago. Do you mean speed?

A. Oh, yes, we have to sacrifice tonnage to make the speed. If the requirement is speed, that would mean sacrificing tonnage.

Q. Are those in charge of the transportation, superintendents and other officials, expected and required to get the greatest efficiency possible out of the engines——

A. Yes, sir.

Q. —on their particular parts of the line?

A. They are held responsible for producing the most favorable results, conditions considered. They are required to show
1602 their performance and explain, if the performance is not 100%, why it is not 100%.

Q. What does that explanation involve?

A. That explanation involves the potential rating of the engine, the actual tons handled, and if the potentiality was not secured, why was it not secured. Usually the explanation would be weather conditions, expedite service, or other causes that would enter into it, but there is an explanation made in all cases.

Q. I suppose, of course, the reasonableness of those explanations is looked into?

A. Oh, yes, they are followed up, and if they are not reasonable the responsible party is held to account. They are not always reasonable. You might have an isolated case where the excuse is not good and the man who failed to produce the results is held to account for his failure, but there is a very close check kept on those matters.

Q. I understand from your statements that the constant practice of the Frisco road is to put on an engine whose size and weight is conditioned to the service it is required to perform, either freight or passenger, under existing conditions, on the individual trip and with reference to all the incidents of the service?

A. Yes, sir, that is correct. As I said before, the general superintendent is held responsible for doing that, and besides, there
1603 is a man whose special duty is to distribute and place engines of the proper size in the proper service so as to get the best results.

Q. And in the proper location?

A. And in the proper location.

Cross-examination.

By Mr. Hill:

Q. If you were assistant superintendent at Monett, say, and had twenty cars of freight to go to Fort Smith; and had a given engine available for that service and in your judgment those cars ought to go down at the rate of twenty miles an hour—that was as many as you thought that engine would carry at that rate of speed—you would make up a train with that engine carrying twenty cars and

send it to Fort Smith at a rate of twenty miles an hour: That would be the course of procedure, would it not?

A. If it was twenty cars of dead freight we would not run it. If there was some important perishable freight——

Q. I said expedite freight.

A. Yes, we would run the train in cases of that kind.

Q. If the next day or a day or two after that you found forty cars of dead freight that did not need expediting, and that same engine were available, and, according to its rating, it could carry forty cars at ten miles an hour you would make that up and send it to Fort Smith in that way, would you not?

A. Yes, sir.

Q. In the one instance the gross engine ton miles that
1604 would be made would be exactly the same as in the other?

A. No—engine miles?

Q. Yes.

A. Yes, sir.

Q. In one instance it would be twenty cars and in the other it would be forty cars?

A. Yes, sir.

Q. But the gross engine ton miles would be the same?

A. Yes, sir.

Q. I mean, take the weight of the engine——

A. Not engine ton miles, but engine miles.

Q. I put it engine ton miles. I am assuming it was the same engine and, of course, that would be the same weight of the engine, would it not?

A. If you refer to the weight of the engine, yes.

Mr. Moore:

Q. You are speaking of engine miles and not engine ton miles?

A. That is what I am just trying to correct. I don't mean engine ton miles, the weight of the train——

Mr. Hill:

Q. I am not referring to that. I said gross engine ton miles. I mean the tons of the engine and the miles that the engine traveled.

A. You are correct. With that meaning you are correct.

Q. That was the meaning I intended to convey and that was the meaning you took in making your answer?

A. Yes, sir.

1605 Q. I am not referring to the train at all, because in one instance you had forty cars and in the other twenty?

A. Yes, sir.

Q. Take these illustrations that I gave and assume that the potentiality of the engine in one instance carried the twenty cars at twenty miles, and in the other the forty cars at forty miles?

A. Yes, sir.

Q. That is what you mean by the potentiality of the engine?

Mr. Moore (to Mr. Hill): What is that, forty cars at forty miles?

Mr. Hill: That may have been a slip of the tongue. My illustration is forty cars at ten miles, as against twenty cars at twenty miles.

A. Yes, sir.

Q. And in each instance that would be the potentiality of the engine, assuming the same engine——

A. Yes, and that is the meaning I tried to convey.

Q. That is how I understood you. I was just trying to get your general propositon to a concrete illustration so I can understand that.

Q. You refer to double-headers on passenger trains in February, 1912: That was an extreme cold spell that very rarely happens on your line?

1606 A. The conditions were abnormal, and I don't know that I have seen similar conditions at any time.

Q. I believe you said you have been with this road fourteen years?

A. Yes, sir.

Q. You never have known that condition at any other time?

A. Not that extreme, no, sir.

Q. If you had been there in one other year, about 1899, we had a cold February—where were you then? Was not that the year we had another cold February?

A. I was on the road in 1899. Yes, I think we did.

Q. I am not quite certain if it was 1899; it was fifteen or sixteen years ago that we had just such a spell as we had in February of 1912.

A. Yes, the conditions were extreme at that time, I remember, but while the conditions were abnormal in 1912 it is not unusual to have zero weather around Monett, and from Monett to Fort Smith.

Q. Zero weather never lasts but a short time in Arkansas, does it?

A. No, it fluctuates. We may have zero weather today and warmer tomorrow, and the next day we may have zero weather again.

Q. It is a very rare thing to have double-headers on passenger trains on account of the weather?

1607 A. It is rare, but it is a condition that does come up at times.

Q. Every fourteen or fifteen years?

A. Oftener than that.

Q. Oftener than that in Arkansas?

A. Yes, sir.

Q. That you have double-headers on your passenger trains on account of the weather?

A. Yes, oftener than that. I should say every three or four years.

Q. For a day or two at a time?

A. Yes, for a day or two at a time.

Q. Do you recall any of those abnormal conditions existing in the last four months of any year?

A. No, I couldn't recall any special months, but I know that in the winter time in various years we have been obliged to double-head our passenger trains, although I could not give any special month or specific year.

Q. You know that our cold weather, zero weather, amost universally comes after the first of January?

A. Yes, sir.

Q. Do you recall any instance where we had zero weather before Christmas in Arkansas?

A. I cannot think of any. I think we had snow before Christmas.

Q. But I said zero weather. We have snow before Christ-
1608 mas frequently. You carry a helper engine on the trains to climb Boston Mountain?

A. Not in every case. There are certain trains that we always help. In cold weather trains that otherwise would not need a helper would have to have one when passing over the mountain.

Q. That is the regular train year in and year out for all your large trains except these light trains?

A. We have a certain car limit there; I think it is eight cars, but I am not sure.

Q. What we call the Can-on Ball and your Texas train always have the helper engines?

A. Yes, we help them from Chester to Winslow.

Q. You do that at the rating figure without taking a helper on account of the grade, do you not?

A. Yes; however, we might have an extra car or two extra cars and only one helper would be necessary, but it is a fact that in order to get up the hill and make the time that we have to make we use two engines, and possibly on some occasions have surplus cars, or could have handled one or two more cars if we had them.

Q. That brings up the next question I want to ask you about. I understand you to say——

Mr. Moore (to Mr. Hill): Are you speaking of the rating of passenger trains?

Mr. Hill: Yes.

1609 Mr. Moore: I did not know there was any rating of passenger engines.

Mr. Hill: He said so.

The Witness: By "rating" I understood you to mean the ordinary train that we handle.

Mr. Hill:

Q. Yes, that is the question we are going into now. I understood your testimony awhile ago to be that in passenger service you had an engine rated above the number of cars it usually carried so that in the event of an emergency or needs of travel you could add other cars to it: Is that correct?

A. I believe I said that we provided engines with surplus power. I don't believe I used the word "rated."

Q. It conveyed the same idea?

A. Yes.

Mr. Moore:

Q. Is it the same idea?

A. What I meant to convey was the fact that an engine was provided for a passenger train with power over and above what was needed to handle that particular train, in order to meet conditions that were liable to arise on a trip requiring more effort from the engine.

Mr. Hill:

Q. That is another way of saying that the engine was not working up to its potentiality, is it not?

A. No. It might work up to its potentiality up a certain grade.

Q. I understand that. There would be a change of grade,
1610 but assuming you carry a surplus for all grades on that particular division——

A. Yes. I meant to convey that if the engine would go back a little in steam there would be enough surplus power to handle the train and overcome——

Q. That is the way I understood it: That would be for the whole district?

A. Yes, sir.

Q. Then the engine is not working up to its potentiality in the passenger service, as a rule, is it?

Mr. Moore: You mean potentiality or rating?

Mr. Hill: I said potentiality.

A. I cannot say that it is not. For some short distance it would probably require the engine to work up to its potentiality in order to make some special run. They might get behind from ten *or* fifteen minutes, and in attempting to make up that time the engine might be worked to its full potentiality.

Q. Was that the thought you were intending to convey in your direct examination when you said the engines carried a surplus power in order that they could pick up extra trains, and Mr. Moore suggested dining cars and sleepers?

A. That is what I meant, and, furthermore, if they are called on for some service not provided for in the schedule, or not contemplated in the schedule, they would have that reserve power. Another thing would be if the train would be late and the
1611 engine was called upon to make up its time it would mean that it would have the power to do it.

Q. Is not that another way of saying it was not used up to its potentiality?

A. No, I don't understand it that way, because the engine might be used up to its potentiality if its——

Q. In an emergency it might be, but if you had an engine that could carry eight cars from Monett to Fort Smith and only habitually carried six, and was put upon that train because at times one or two other cars would be added to that train if you wanted an engine that could carry eight cars, would you not say when it was carrying six cars that it was not up to its potentiality?

A. Ordinarily, but handling six it could be working up to its potentiality and a condition might arise where it would be necessary to do it.

Q. That would be the exceptional instance. I am getting at the general proposition conveyed in your thought as you expressed it in your direct examination.

A. My thought was this: That you would use a passenger engine, say in one direction handling five cars, and you would have a surplus of potentiality, but that same engine on the return trip would be required to handle seven and would have her potential rating.

Q. That comes to the next point I want to discuss: There is quite a difference in potentiality in going south or coming north from Monett to Fort Smith?

A. Yes, there is considerable difference.

1612 Q. Say you had one engine that could carry five cars—I don't know whether I know your situation well enough to know whether that is a good illustration, but I will use that simply as an illustration—an engine that could carry five cars coming north, and you habitually ran it only with three cars: That would be running under its potentiality, would it not?

A. Yes, sir.

Q. What is the difference in the definition of the terms "potentiality of the engine", and the "tonnage rating" of an engine?

A. Well, the only way I can explain that is this: That an engine working at its full capacity, exerting its full potential power, at a reduced speed, could handle an established rating for that speed. The same engine, without reducing its potential-, when called on for a higher rate of speed could not pull the ten mile an hour tonnage rating because the effort is used in getting speed instead of pulling tons. The higher the speed the more revolutions the wheels make in a given time, and the more rapid the piston travels, and that effort goes in that direction.

Q. Goes to speed instead of tonnage?

A. Yes, sir.

Q. On page 7 of this time-card I find "Tonnage rating of engines by classes:" Give me your definition of that, will you?

A. That is according to the tractive power of the engine.

1613 They are classified according to their tractive power.

Q. This says that would be called the 11 ton class, would it not?

A. Yes, that is the 11, in the 11 tonnage class.

Q. I see the weight, southbound from Jonesboro to Memphis, is 1,850 tons, and northbound from Memphis to Jonesboro is 1,350 tons, a difference of 500 tons in the tonnage rating of that particular class of engines: Just what does that mean?

A. That means that the grades southbound are easy and northbound are more severe.

Q. That the difference in grades on the same engine will require a difference in the loading behind that engine to its maximum of 500 tons, in that particular illustration?

A. Yes. It means that the engine with reduced tonnage working at its full capacity cannot pull as much with more tonnage in the opposite direction and under the same condition.

Q. In each of these instances when it is dealing with the 1,850 tons one way and 1,350 tons the other way, it is working at its potentiality, is it not?

A. Yes, sir.

Q. You have given quite a number of conditions that affect the loading of trains in your direct examination: I will ask you if the traffic conditions do not also seriously affect the loading of trains?

A. Do you refer to the lack of traffic to move?

1614 Q. Yes, congestion or traffic.

A. Yes, that affects the loading. There is certain service that is arbitrary.

Q. That is local?

A. Not always. We have high class merchandise trains that we run every day even if we don't have full tonnage. Those trains carry merchandise to the various local subdivisions and it is distributed by those local trains.

Q. You run these out of large centers like St. Louis, too?

A. Yes, and if the traffic was scarce, or there was not sufficient tonnage to fill that train to 100%, we would run the train whether or not we had full tonnage for the engine.

Q. If you had only 50% you would run the train?

A. Yes, sir.

Q. And do that constantly?

A. That service is arbitrary.

Q. You do that constantly?

A. We do when the tonnage is not there, we run certain trains arbitrarily every day. That applies to the local, particularly, and to certain through trains, and under those conditions the engine would go over the railroad without its maximum tonnage capacity, due to the requirements of the service.

Q. If you have what you consider good business reasons for doing so?

A. Yes, sir.

1615 Q. You have established a great deal of that regular service, have you not, out of St. Louis and out of other jobbing centers?

A. Yes, sir, we have regular merchandise trains out of St. Louis that run every day, but we try to accumulate tonnage to fill those trains and avoid running them light. For instance, if this morning at 8 o'clock we would have enough tonnage here to justify running a train, if we were not sure that we could fill the merchandise trains out tonight, we would hold that train here and use the tonnage to fill the merchandise trains and avoid running them light. We are constantly watching that with the end in view of getting a full load for our engines.

Q. Good business requires you to get those trains as well loaded as you can?

A. Yes, sir.

Q. If you cannot get them loaded good business also requires you to send those trains over the road?

A. Yes, that is correct.

Q. And a great deal of that is done?

A. Yes, sir.

Q. More when it is not full: That is constantly done to the local, is it not?

A. Well, the local runs every day whether the tonnage is there or not.

Q. Do you think that is good business in traffic if the local is pretty well filled up?

1616 A. Yes, sir.

Q. If the volume of traffic is light you run a very few cars?

A. That is correct, except that even under the most favorable tonnage conditions you cannot get your tonnage rating on your local by reason of the nature of the service which requires the train to set out loads at local stations where there may not be loads for them to pick up.

Q. You always have on the local train, however, a surplus of power there so that you may be able to pick up the loads that would be in the district, would you not?

A. Yes, sir.

Mr. Moore (to Mr. Hill): And make the speed, he said.

Mr. Hill:

Q. The speed is not very much of a factor in the local train?

A. It is a very important factor, on account of the sixteen hours of service.

Q. But before that sixteen hour law went into effect the speed of the local did not cut much figure in railroad operation?

A. No, it did not, although at that time the men had a contract with the Company that they could call for rest at the end of sixteen hours.

Redirect examination.

By Mr. Moore:

Q. In the class of service you spoke of, on arbitrary or

1617 expedite trains, that is done, is it not, to carry a very high class of freight?

A. Yes, sir.

Q. That is "Red Ball" freight?

A. Those trains are selected for that special purpose, red ball trains, the trains I had reference to.

Q. And they carry a high class of freight?

A. Yes, sir.

Q. They run fast, do they not, with reference to their tonnage?

A. Yes, sir, they run fast. They necessarily have to by reason of the character of the freight that they handle.

Q. Mr. Mayer referred to the time-card rating of engines 3611-3716 and 3718, in road freight service: What are those engines?

A. They are switch engines.

Q. Do they ever pull road freight trains?

A. They have not the engine trucks. It would not be safe to put them on the road.

Q. He also had a great deal to say about the time-card rating of the 1030 class engines in freight service.

A. They are high wheeled passenger engines.

Q. Those are the Pacific type of engine?

A. Yes, sir, high class passenger engines and not suitable for freight service.

Q. They do not pull freight trains?

A. No, sir, except in extraordinary circumstances. They
1618 are not built for freight service. They have high wheels and they could not pull a big load.

Q. Are they used in freight service except to break them in when they come out of the shops?

A. When an engine has been overhauled in the shop, it is the practice to run it for one or two trips in the freight service.

Q. To break it in?

A. Yes, sir, to break it in. And in such instances the engine handles two-thirds of the tonnage and not its maximum load.

Q. Those are the passenger engines?

A. Yes, sir, or with a freight engine, for that matter, for breaking it in after it has come out of the shop.

Q. Wouldn't there be about the same margin of service appearing in the small engine pulling a small train in passenger service as in a large engine pulling the big trains?

A. Yes, sir.

Recross-examination.

By Mr. Hill:

Q. You handle quite a good deal of fruit and vegetables and perishable commodities out of Arkansas, do you not?

A. Yes, sir, I think we handled 2,600 cars of apples this season in Arkansas.

Q. And you handle a lot of perishable commodities out of Crawford County, too?

A. Yes, sir.

1619 Q. In making up those trains you have to run them fast, don't you?

A. Yes, sir.

Q. You do not have anything like the loads on them that you would have on dead freight, do you?

A. No, sir. We sacrifice tonnage for speed on those trains.

Q. About what is the proportion that is sacrificed on account of expediting the service?

A. I could not give you correct figures on that.

Q. I don't mean accurately.

Mr. Moore: That is a statistical matter which should be gotten from the records of the Company.

Mr. Hill: He would know approximately.

A. As a matter of experience, based on watching the performance

from time to time, I would say that an engine rated at 1,000 tons, at a speed of ten miles an hour, if called upon to make twenty-five miles an hour, the reduction would be about 300 tons.

Q. Is that about the speed you would run your fruit trains?

A. Yes, sir, about twenty-five or thirty miles an hour, in places; but an average speed of twenty-five miles an hour.

Q. I understand that. There would be a difference in places. Do you handle much stock in Arkansas?

A. Quite a good deal. We get a good deal off the O. & C.

1620 C line.

Q. You handle it in Arkansas?

A. Yes and quite a good deal that comes to us from parts of the line that runs through Arkansas.

Q. That is handled in the same way? It is handled as fast freight?

A. We have one train we designate as a "stock pick-up." That train starts out light. We know before the train leaves the terminal how many cars of stock are to be picked up along the line, and we start that train from the terminal sufficiently light to pick up a car here and a car there until it has picked up its load.

Q. And then you run it fast?

A. Yes, sir, then we run it fast.

Q. How many miles an hour—twenty-five or thirty miles an hour?

A. We advertise to make fifteen miles an hour, but we run considerably faster than that.

Q. Don't you handle considerable stock on your Memphis line, too, considerable trans-state shipments?

A. I have not direct jurisdiction over that line and I don't know what is done there.

Q. I see in the papers that you handled a good many mules down that way.

A. I know they handle a good many down there.

Q. They all go fast—if the mules do not?

A. Yes. The Frisco also has the banana business.

1621 Q. Yes, I wanted to ask you about that. They handle a good deal of this banana business?

A. Yes, sir.

Q. And that is handled fast?

A. Yes, sir. It is necessary to reduce the tonnage to make the speed.

Q. Does your road handle much of this trans-continental citrus fruit business?

A. It does not pass through Arkansas. We get that from the Santa Fe at Waynoka. That comes down though Oklahoma and east that way.

Q. You do handle a good deal of fruit from New Orleans, oranges and so on, up through Fort Smith?

A. Not so much as formerly. Three or four years ago we handled a heavy movement.

Q. Have you lost that trade or is it diverted and goes around through Memphis?

A. We lost most of that because most of it originated on the Texas line. It was cabbage and tomatoes and things of that sort. We have lost most of that.

Q. I was referring more to the South American fruit, oranges and bananas and so on: Don't you handle most of that?

A. Not through Fort Smith. The Illinois Central delivers that to us at Memphis and we handle it over the Ozark Division.

Q. You handle quite a volume of that?

A. Yes, sir.

1622 Q. And that is all "expedite" freight?

A. Yes, sir.

Q. On lightly loaded trains?

A. Yes, sir.

Q. We have an instance of an onion train passing through Arkansas on the Iron Mountain Railroad. Do you handle onions?

A. Yes, sir, we did handle onions.

Q. It left its trace and its odor?

A. Yes, sir, we handled the Bermuda onions, a great many carloads.

Q. That is another class of expedite freight included under the general designations we have had?

A. Yes, sir.

Redirect examination.

By Mr. Moore:

Q. In actual service the object always is to get the greatest efficiency out of the engine, under the varying conditions of service, with reference to both tonnage and speed?

A. Yes, sir, we are aiming to get the most efficient service we can and every train mile we eliminate by increased ton haul is a credit to operation. We try to handle the maximum number of tons with the minimum number of train miles.

Q. Judge Hill fixed the speed of his fruit trains at 25 miles an hour: I will ask you what the reduction below 1,000 tons, on

1623 a ten mile speed, would be? Now suppose you increased the speed to forty miles, what would be the reduction?

A. It would be very much below what I mentioned. But I do not feel competent to answer offhand. Those things vary and while I know there is a very decided reduction, and the tonnage has to be sacrified as the speed increases, I could not tell you the exact amount of tonnage that would have to be sacrificed in order to gain a certain speed.

1624 T. A. Hamilton, recalled, testified on behalf of the plaintiff in rebuttal, as follows:

Direct examination.

By Mr. Moore:

Q. On pages 1235 and 1236 of the record Mr. Simson stated that the method you employed in your Exhibit 27-A, on page 13, of

equating the 1913 assignment of expenses to Arkansas made by Mr. Douglas under the old formula, to the new formula, was in error and resulted in assigning to Arkansas $7,397.80 too much.

A. Yes, sir.

Q. Mr. Simson's criticism was that you applied your equating method only to the five Interstate Commerce Commission groups of accounts: I wish you would state how that is.

A. As I read Mr. Simson's statement in the record, it was that because in making our equation of the assignment of expenses to Arkansas, on all traffic, as made by Mr. Douglas under the old formula, we have applied our equating percentages to the total maintenance of way expenses, the total maintenance of equipment expenses, the total transportation expenses, the total traffic expenses and the total general expenses.

He said that if we had, instead of doing that, applied these percentages, worked them up and applied them, to each individual Interstate Commerce Commission account, to the whole 116 of them, we would have charged $7,397.80 less to Arkansas than we did.

1625 Now, it occurs to me that if we were going to go that far we might as well go a little farther and if we are going to follow the spirit of the formula filed here as Exhibit No. 1, and reflect its effect under the system which it proposed, we would necessarily have to go a little further.

So I started where Mr. Simson left off.

I made that equation by individual Interstate Commerce Commission accounts, just as he suggested; but I adjusted the Company's material burden from the freight to the passenger side, as we did, and spirit of the formula, like our friends on the other side said we must do.

I made that equation after that adjustment, or the adjustment figure in the figures I used, just as when I equated the group totals, the five I mentioned; and then I applied those percents to each individual Interstate Commerce Commission account as assigned by Mr. Douglas under his formula, to freight and passenger, separately. That is the spirit of the formula and that is what we did when we equated the group total.

I find that if we had done that and gone into that minute detail, instead of assigning $7,397.80 less to Arkansas we would have assigned $8,400.38 more.

We thought the proposition was broad enough to carry back the equation of freight and passenger in the five groups, and did it in good faith, and followed the spirit of the formula.

If you are going to refine it at all, you must refine it all
1626 the way through. And when you do that you get the reverse result, that I have quoted.

I want to say in that connection that we did not change and do not want to change our Exhibit 27-A, to take in that additional charge of $8,000 to Arkansas.

I believe that the exhibit as it stands follows the spirit and the letter of the formula, and is a fair presentation of the fact.

Q. On pages 1237-1238 and 1239 of the record Mr. Simson says that Mr. Douglas' formula claims to have directly allocated certain items, and these results are obtained after allocating certain items under the new formula, which also says it makes a direct allocation: What are the facts in that connection?

A. As I understood Mr. Simson's statement, it was that Mr. Douglas claimed to have made a direct allocation of certain items to the State of Arkansas and that we did not get the same results when we made what we call a direct allocation under the new formula.

There seems to have been some misconception of what those items were.

Mr. Simson kindly loaned me his working sheets on that and I went over them. We found that they are a very large part of the same items that Mr. Simson reflects in his Exhibit G.

We will come to Exhibit G a little later, but the connection
1627 might as well be established here as not.

Exhibit G shows that in following what we term the "old formula" or, rather, our general auditor's regular formula for assignment to states, in the year 1913 Mr. Douglas set up part of the Memphis terminal expenses which on the basis of his formula were properly chargeable to the state of Arkansas. Then, through a clerical error in his statistical department, those items were charged to Tennessee.

We, of course, based our equating percentages in 1913, in good faith, on Mr. Douglas' original assignment.

But we put that money actually into Arkansas, every dollar of it. Because we made a correct allocation.

So, then, the percents that we obtained did not reflect the proper equation, so far as those items were concerned.

Mr. Simson shows that in his Exhibit G, which I will show later.

I find in tracing out the items which Mr. Simson mentions on those pages of the records, that they are included in the same items which appear in Exhibit G.

So our direct allocation was not so very different from Mr. Douglas'. In fact, the spirit of them was not very far apart.

There can be but one construction of that, and these were items that did not require divisional or entire line pro rate. They were practically all station and yard expenses, which would locate
1628 themselves geographically. We did not have to make a pro rate of them, except at the middle of the river at Memphis.

Mr. Douglas did directly allocate these items, but through an error of a clerk in his office, the Arkansas proportion was put in the Tennessee column. That is the whole thing in a nut shell. It is the same stuff that appears again in Exhibit G.

Q. Take Mr. Simson's Exhibits B, C, D and E: What have you to say as to the basis or principle upon which these exhibits are prepared?

A. I don't suppose the detail of these exhibits needs any further discussion than has been had here already. I think that is thoroughly understood, and the principles upon which they are prepared.

I might, if I may, bring Exhibit A into the proposition so it will be understood in this connection with these exhibits.

In Exhibit A Mr. Simson applies to the total terminal cost which we set up in the state of Arkansas, under our formula, on the basis of the time study, both in train, yard and engine service; and in some matters of direct allocation, and applies to it the units which represent the ton handlings and the passenger handlings in Arkansas, arriving at a cost per ton per terminal or per ton handling of 31.139 cents; and per passenger of 5.443 cents.

1629 That is, the average costs of terminal handling, or the average cost per ton per terminal and per passenger per terminal, are the basis of Exhibits B, C, D and E, with this qualification:

That in Exhibits B and D Mr. Simson uses other averages which we at first arrived at and which were in error, because we had divided them by the wrong number of units to a small extent.

For that purpose I will confine my remarks to Exhibits C and E, where we are in agreement as to the cost per ton per terminal and per passenger per terminal; and the other difference does not obscure the issue.

The terminal cost set up in the Company exhibits filed in this case is based on the actual service rendered at each terminal or station to each ton or passenger.

An intrastate ton, having been counted as many times as it was actually handled, and at least twice, taking in both origin and destination; while the interstate ton was counted as many times as it was actually handled, being counted but once unless it actually received an additional handling in the state.

Now, I said in the beginning the "terminal cost in the Company exhibits": By that I meant the average cost per ton per terminal and per passenger per terminal, not the total cost in the Company exhibit.

1630 These ton and passenger handlings added together made up the figures which were used to divide the aggregate terminal expenses in arriving at this cost per handling.

But the total terminal expenses, in the case of freight, for instance, in the test period $137,000, in round figures, was ascertained without any regard whatsoever to the number of units, tons or passengers handled.

It is based upon the actual time devoted to, and the expense on a time basis incurred in handling those units.

No division of expense was made between line and terminal, nor was any terminal cost set up on any division in which the tons and passengers were units; that is, on net tons of revenue freight, and revenue passengers.

As an illustration, the station employes' time, their wages, was divided between line and terminal and between freight and passenger, on the basis of the time devoted to each class of service.

The yard expense was divided on the basis of the time devoted to freight and passenger and line and terminal work, separately; and

without regard to the number of tons or the number of passengers handled.

Likewise, all the other allocations of terminal expenses entering into the amounts appearing in the Company's Exhibits as such were obtained without reference to the traffic units handled.

In the locality where there is short haul traffic, the terminal expenses are necessarily greater in ratio to the total expenses, by
1631 reason of the fact that more of the time of station and yard forces in the aggregate and more of such facilities are devoted to terminal work for a given haul.

I might make a homely illustration of that, which occurs to me. If I were going to ride from Broadway and Olive Street to Kingshighway, some forty-five blocks, and I got on and off ten street cars in making the journey, and it was a muddy day, I would get a whole lot more mud on my shoes than if I rode straight through to the end of the journey on one car.

Just as my shoes would accumulate mud, so every time you move a unit of traffic out of a terminal or into a terminal, and out again and then into another terminal, to accomplish a given mileage, it accumulates expense, and it sticks to it.

That is, it should bear the burden of expense.

The difference in the average length of haul of freight and passengers in Arkansas compared with the entire line, we will take the fiscal year of 1913 as an illustration, would be: Freight, Arkansas, 75.85 miles.

Entire line, north of the Red River, 166.21 miles.

Passengers, Arkansas, 23.60 miles.

Entire line, 43.65 miles.

Those figures are quoted directly from the annual report of the Company to the Arkansas Railroad Commission for the fiscal year ending June 30, 1913.

1632 This would clearly indicate that on the entire line a much longer haul is secured for both freight and passenger traffic than in Arkansas.

As a result, there should be a much less terminal burden per ton mile and per passenger mile attaching to the traffic of the entire line than is found in Arkansas.

There is, to my mind, no more reason in undertaking to ascertain the total terminal expense upon the entire line by the cost per handling obtained in Arkansas than there would be in undertaking to ascertain the total station cost of an entire railroad system by multiplying the total tons or passengers handled by the average unit cost per ton or per passenger on a given division of that railroad or at a given station.

The density of traffic is a matter to be met in practical actual railroad operation and must in all cases determine the amount of expense involved upon any division or upon the entire line.

There could not be any more reason, it seems to me, in finding the transportation cost or haulage cost, if you will, on the entire line, by multiplying the entire line traffic units by the unit cost in Arkansas, than there would be in trying to determine the total trans-

portation cost of an entire line by multiplying the entire line units by the unit cost of a single operating division of that line; which must necessarily be reflective of the traffic conditions and density on that division.

1633 Right at that point, I would like to make an illustration and this is not theoretical, or prepared for the purpose of any litigation of any kind, but is something which enters into our daily life on the Frisco Railroad.

I have here copies of our regular train performance sheet, which we call our "operating sheet" for the month of September, 1914, and I want to illustrate with it.

It is taken from my file, without knowing what it would show until I came into the court room and I have looked at it since I have been here.

I want to illustrate what I meant by the effect of traffic density on operating cost.

It sticks out of this thing like a sore thumb.

I would like to offer this as an exhibit.

Q. Can't you illustrate without making it an exhibit?

A. No, sir.

Q. Make it an exhibit, then.

A. I will offer this as Exhibit 55.

In this Exhibit 55 you will find shown in the left-hand margin, among other data, the net tons of freight one mile per mile of road.

A little lower down you will find the fuel cost per thousand net ton miles, and still lower down you will find the wage cost per thousand net ton miles.

1634 Across the top are headings which indicate the operating divisions whose operating results are reflected in the report.

In the first column is given the total of all divisions of the entire railroad.

You will find there under the heading of net tons one mile, per mile of road, the figures for the entire line in the month of September, 58,299 tons.

That is the freight traffic density of the road.

In that same column headed "total all divisions" you will find fuel cost per thousand net ton miles to have been 42.9 cents.

Still lower down there is shown the total wage cost—that is the wages of the train and engine men—per thousand net ton miles, which is 72.8 cents.

Now let us take this Red River Division, which is one I see here and which has some mileage in Arkansas.

It has a traffic density of 59,866 tons per mile of road for the month.

Now you will notice that the fuel cost on that division is very close, within 6/10 of a cent per thousand net ton miles of the fuel cost for the entire line.

But the wage cost is a little higher.

I might say in explanation of the fuel cost that these computations are absolutely comparable on a dollars and cents basis, be-

cause on this operating sheet we spread our fuel on the average system price over all the divisions.

Let us take the Western Division where the traffic is light.

1635 As against the 58,000 tons for the entire railroad it has only 19,564 tons per mile of road.

Mr. Hill:

Q. Where is the Western Division?

A. The Western Division extends from Beaumont, Kansas, to Vernon, Texas, and the cross line from Avard to Tulsa.

Q. It is not in Arkansas?

A. I was not trying to illustrate Arkansas conditions, but was trying to show the comparison of density of traffic and cost of fuel, wages, etc. The Western Division density of traffic in net tons per mile of road is shown to be 19,564 tons and on the entire line is shown as 58,299 tons.

The fuel cost per thousand net ton miles for that Western Division is 50.2 cents as against 42.9 cents for the entire railroad.

We could not fill those trains. We did not have the traffic for them.

Now look at the wage cost. Instead of being 72.8 cents as on the entire line it is 1.129 dollars per thousand net ton miles.

Now we have the reverse of the picture: Here is a heavy traffic division, the Northern Division.

On the Northern Division the traffic density is 104,054 tons for the month, per mile of road. Pretty near twice as much as on the entire line.

His fuel cost is down to 23.6 as compared with 42.9 and his wage cost is down to 52 cents as compared with 72 cents on the entire line.

1636 Now here is Arkansas, the Ozark Division, about which we were inquiring.

He has a traffic density of 64,000 tons, a little greater than the entire road, 58,000.

His cost is 48 cents for fuel, about 9/10 less than the cost for the entire line.

His wage cost is about one cent or a little over less.

It runs pretty well with the entire line, because his traffic density runs pretty well.

Here is another division which has a little mileage in Arkansas, the River and Cape Division. That is the Memphis line. The lower end of the Chaffee Subdivision is in Arkansas. His traffic density is 38,000 tons per mile of line against the entire railroad 58,000.

But he has a fuel cost of 35 cents, which is seven cents less than the entire line.

And he has a wage cost which about equals the entire line, 72 cents.

That is a water level route and that accounts for the difference in fuel consumption.

I have quoted fuel and wages because they are the only specific operating costs, except helper services, which appear on this sheet, and you can readily see that the thin traffic division has the larger cost, in these two single biggest items which the railroad incurs in transportation expense.

1637 I did not mean to slight the Central Division, which runs down through Fort Smith. I would better get that in and have all the Arkansas divisions represented.

The density of traffic on the Central Division was 33,500 tons in this month of September, as against 58,000 on the entire railroad.

Its fuel cost was 59 cents and that of the entire road 42.9.

And the wage cost is almost 92 cents as against 72.8 on the entire road.

The traffic density and transportation unit cost goes pretty well hand in hand.

That is intended to illustrate what I meant when I said there could not be any good reason, or any rational reason (if there could be any such thing as an irrational reason) as finding entire line costs by multiplying the entire line traffic units (I am talking about line service or what we call line units) by the unit cost in Arkansas than there would be in trying to determine the entire line cost of the road by putting against its ton mileage the line unit cost of the Western Division, which I have illustrated here.

Now as to the terminal cost per unit:

In my judgment the only way the terminal cost per unit, as well as the line cost per unit, on the entire line, could be correctly ascertained as is proposed to be done here in Exhibits B, C,

1638 D and E, would be to analyze the tons and passengers handled on the entire line, and the expenses of the entire line, making line and terminal assignment of expenses on the time and other related bases, as was done in Arkansas and is reflected in our exhibits.

I think so far as line costs are concerned, my illustration of our thin traffic division unit cost as applied to the units of the entire line ought to be obvious.

Obviously the Arkansas unit cost and expense of Arkansas are not representative of Oklahoma or any other state.

I want to make a somewhat similar illustration upon this process of applying units of one division or state or territory to the traffic of the whole railroad, to another statement we get up for our own information and guidance, every month. It is issued by me, just as the previous statement I quoted from is, for the information of our operating officers. It is compiled in my office and I am prepared to vouch for the accuracy of the figures contained in it.

This is a statement of yard cost for the same month, September, 1914.

It has comparisons with other months, but I will take that for September, 1914, as the other is here if you wish to see them. It is in the same statement.

I want to explain first how these yard cost figures shown here are arrived at.

The number of cars handled in each individual yard
1639 on the railroad, where a switch engine is kept, are tallied, and that tally is checked at frequent intervals to see if it is accurate.

In fact, it is watched by the General Superintendent's office as well as my own, very closely. The number of cars handled is reflected in this sheet for each of these months.

The expenses of each yard are assembled and they are the actual expenditures incurred in those yards, each and every one of them, with the possible exception of the small item of water, where the road engines and the yard engines draw water from the same tank, and this water cost is prorated on the basis of coal consumption, the number of pounds of coal consumed in the fire boxes of the respective engines. The same number of gallons of water will be evaporated by a pound of coal in the one as in the other.

All the other items are actual, as attaching to these individual yards.

There is a striking parallel there between that and the terminal cost we built up in our exhibit in Arkansas. Those are the costs that directly attach to the service.

Those are the costs that actually attach to the yard, and to the service in the yard.

The Arkansas terminal costs in our exhibits are set up on the basis of the time devoted to the service, regardless of how many units, tons or passengers, were handled.

These yard costs are assembled regardless of how many
1640 cars were handled in the yards.

I do not mean by that we would have just as much cost if the business were cut in two, and we took off half the switch engines, but the facts remain that these are the actual costs in the yard regardless of the number of cars handled.

Let us see how these unit costs would work if they were applied, exactly what was done in Exhibits B, C, D and E.

September, 1914, shows that for every character of yard transportation expense (and it is transportation expe*n*se we are discussing here) the whole line had a cost per car handled of 23.2 cents.

When I said transportation expenses I meant yard services.

We handled 593,329 cars in all of our yards, at an average cost of 23.2 cents.

Now, here is a yard which is operated pretty cheaply. It is Fayette 14½ cents.

If I take that 14½ cents and multiply those 14,093 cars by it, the cars actually handled and this is the actual cost at Fayette, I will get a good deal less money than we actually spent for our yard service that month; because that actual cost is an average of 23.2 cents as against 14.5 cents per car. (See explanation on page 1787.).

Now take Jonesboro, and Judge Hill will pardon me but this will be a caricature of Exhibits B, C, D and E.

1641 The Jonesboro cost was 35.9 cents per car. Put that against the actual number of cars we handled on the entire line and you will get a good deal more money than we actually spent for yard service.

That illustrates the fallacy of taking a cost per unit obtained as the result of dividing cost actually incurred, as in the case of these yard cost statements, or set aside upon the time study basis, where it is necessary to prorate expenses, as we did in our exhibits, the fallacy of taking that cost per unit and applying it to the units of the entire railroad and endeavoring to come out with the actual cost of the entire railroad.

Take Jonesboro as an illustration, which is the best one I see here. There are many other fluctuations—as a matter of fact the big terminal stations at Kansas City and the St. Louis yards pull down that average to 23 cents.

We incurred some $1,800.04 actual cost in operation of the Jonesboro yard in September, 1914, and we handled there 5,018 cars, or an average cost of 35.9 cents per car.

Let us assume, for the purpose of illustration, that Jonesboro and its $1,804 represents our Arkansas cost in these exhibits on yard service. That is the money actually spent at Jonesboro.

The total terminal cost in our exhibits is the expense set aside on the time basis in Arkansas.

I don't know that I can make the comparison any stronger,
1642 except to say once again, that if we suppose Jonesboro, or its yard cost, typifies Arkansas, we actually had that cost in Jonesboro; yet if you take that average and put it against all the cars handled on the entire line, you get a great deal more money than the railroad actually spent.

But that does not affect the fact that we actually spent that $1,804 in Jonesboro.

That is the exact parallel between our exhibits and this illustration.

The fallacy of the principle in Exhibits B, C, D and E is this: That the cost is secured in one way and is being applied in another way, absolutely.

If we had determined our total terminal cost by using these units, and they were divided into it, Exhibits B and E would have been absolutely sound.

I want to illustrate that a little further, if I may:

The traffic density proposition enters into this. Our Northern Division line, running from Kansas City through Fort Scott to Springfield, the traffic density between Fort Scott and Kansas City in 1913 was over 3,000,000 net tons per mile of line per annum. That is equal to the average of the states of New York and Pennsylvania.

We were able to haul up there 3,000 and 4,000 ton trains. We got them over the road in just about the same time as we would a like train in drag service in Arkansas.

1643 We did not pay that train crew a dollar more wages per mile than we paid in Arkansas.

But think how that per mile unit would spread out. You get 3,000 ton trains up there as against 600 tons down here.

That is the same traffic that Mr. Simson applies these line units to. It is line service.

Take a little way station, from a terminal standpoint. The traffic density is light, but the train would stop at say Marked Tree, a station

in Arkansas, and it might have one ton of freight to unload out of one car. The train is there twenty minutes, perhaps, doing it, and we are charged 20 minutes of three brakemen's time, and translate that into dollars and cents charge of terminal service at Marked Tree.

If you try to reflect that condition on our Eastern Division, up near St. Louis, with a larger tonnage and heavier traffic—the local train stops at a station and has to unload three tons; it is a larger station with more density of traffic, more business there, they would unload three times as much and those three brakemen will unload three tons out of three separate cars. That happens every day. The train would be there only the same twenty minutes, there would be the same charge, the same proportion of time on which to base the charge to terminal service.

That is the thought I had in that connection.

Traffic density is a factor, not only in haulage service, but in terminal service.

1644 There is another angle to this thing:

Comparative density of traffic in Arkansas and upon the entire line might be fairly illustrated in the figures shown in the annual report to the Railroad Commission of Arkansas for the fiscal year ended June 30, 1913.

The number of tons of freight carried one mile per mile of road for Arkansas was 545,957.

That is, the density Mr. Simson is comparing with the three million ton density on the Northern Division, and something over two million tons on the Eastern Division, and close to 2½ millions on the River and Cape Division.

However, there are other thin traffic territories on the road and the entire line density is 633,906 tons per mile of railroad. For that year about 19 to 20 per cent greater than Arkansas. The number of passengers carried one mile per mile of road in Arkansas in the year 1913, was 75,333, and upon the entire line 97,353; about 30% greater.

Now if we translate the number of ton and passenger handlings on Mr. Simson's exhibit so as to get a comparison of Arkansas against the entire line, in the test period (take that for illustration) we find what Mr. Simson has done by carrying the Arkansas handlings out to the entire railroad is to show on his basis for the entire line the number of ton handlings per mile of road, based on its traffic density of 13,371.

1645 That is reflecting Arkansas conditions upon the entire road and considering the volume of traffic that passes over it, we would have ton handlings per mile of road for that year 1,371 on the entire line as against 740 in Arkansas.

And passenger handlings on the entire line of 954 as against 627 in Arkansas.

It seems to me that would have a very material effect on the unit cost in the different territories we have compared.

Now, as a further illustration, or criticism, if you will, of exhibits B, C, D and E, I would like to direct attention to the ratio

of terminal cost to the total cost of the entire line that he reproduced under his application.

In the first period his application shows that on the entire line the terminal percent to total freight expense is 48.27 while in Arkansas it was 38.71.

That is, his built-up figure is 48.27.

Also the terminal burden per ton mile on the long haul of the entire freight traffic, more than twice what the haul was in Arkansas, was 4.34 mills. While in Arkansas the burden on short haul traffic is only 2.94 mills.

Those are figures derived from the constructive expense that Mr. Simson has built up by carrying Arkansas unit cost out to the entire road.

It seems to me it would be obvious on its face that were you to have a haul more than twice as long, you could not have the
1646 burden of terminal cost so materially greater, as is shown by the figures I have just given.

Now we contend that the terminal cost in our exhibits for Arkansas *are* accurate, on the basis laid down in the formula. That the figures are accurate; that they represent on a time basis the terminal cost in Arkansas.

We contend, further, and it should be obvious, that they are not built up on the ton handlings or the passenger handlings of Arkansas. They are the result of those handlings expressed in time, but they are not built up by using those units.

While, no doubt, the unit costs ascertained for Arkansas are correct, the fact cannot be ignored that they have been constructed on Arkansas conditions, and Arkansas traffic density, and the lack of such density in Arkansas as compared with the entire line is incorporated in these unit costs. Therefore, they certainly do not reflect in any way, a proper unit cost which should be carried out and applied to the traffic of the whole railroad.

I would like to say further, that it should be obvious from these last figures I quoted, that if you apply the terminal burden per ton per mile, for instance, (and the same is true of the passenger—only the figures are different), that if the 2.94 that really attaches to Arkansas traffic be applied to the entire railroad to get your terminal costs, considering your length of haul, which must be con-
1647 sidered, it would wipe out absolutely all the excess of operating cost "as computed," as it is called in these Exhibits B, C, D and E, over the actual cost of the entire railroad.

Q. Take up Exhibit Q and explain it and give me your view concerning its value as applied to the issues in this case.

A. Exhibit Q filed by the state, according to my understanding of it, shows the amount of freight in transit at the beginning of our four months' period of 1907, which the auditor took out of September, on account of being in transit previously set up for August, and running through the four months, and compare that with the amount in transit which the auditor put into December, on account of business afloat at the end of that month.

And the latter amount is $255,024.84 less than the former.

It might appear, on the face of it, that we had done something awful to those four months' figures. As a matter of fact, they are the actual figures that our auditor had set up on his books, in the ordinary course of his business, without any relation to the affidavit which he subsequently prepared for the purpose of the initiation of this litigation.

Our Exhibit 35 shows that the proportion which these four months' earnings were of the earnings of the entire fiscal year, of which they are a part, was 36.98.

There is no fiscal year since, I want to reiterate here, where
1648 the earnings of these same four months of the calendar year have been as large a proportion of the total earnings of the fiscal year of which they were a part.

So if we were picking a period when the entire line earnings were low we did not pick one that was very good for any such purpose.

Third, this difference of $255,024 in transit, applies to the entire Frisco line north of the Red River. Only 12% of the mileage of which, in round figures, is in the state of Arkansas.

My understanding is that the auditor in setting up his total earnings within the state of Arkansas spread them and made the adjustments of every character, as shown on this sheet, on the basis of road mileage.

I am very frank to say that I do not think that is a proper basis. I think any adjustment of that kind should be on the basis of revenue. I agree with Mr. Simson on that.

Referring to this and the other items on Exhibit Q, not one dollar of that adjustment reaches to the intrastate freight revenue, as shown in our exhibits in this case.

For the entire year 1913, we analyzed and set up each and every dollar of intrastate freight revenue that pertained to Arkansas, and applied against it every adjustment, attaching it to the original road haul, such as switch absorptions, overcharges, refunds, all deductions from freight revenue. So that whatever may have been the
1649 error in assigning the total earnings to the state, that error is not inherited by our intrastate freight figure.

There can be no question about that, in 1913.

We found when we got through with that careful and minute assignment of intrastate freight earnings to Arkansas, we were within one per cent of Mr. Douglas' result by his method. There was not any room for fluctuation that could be material in this matter.

I notice, right in that connection, that the passenger earnings have not been touched upon any place in the exhibits filed by the state.

I want to say, however, that we followed the same careful process in the assignment of intrastate passenger earnings in Arkansas.

And further as to this in-transit proposition: Mr. Simson was asked whether in his judgment there should be any large amount of intrastate freight in transit in Arkansas. He said he did not know, but he said there might be, and he had known of a 25 mile shipment to be in transit quite a while.

I have, at some labor and expense, obtained the agents' reports and

interline settlements, dug out of our storehouse at Springfield, for 1907, and had our auditor go over them carefully. When we took the totalof the forwarded reports and the total given to us on interline intrastate freight in Arkansas which had passed Junction points during those four months, and the total interline intrastate
1650 which we forwarded, which had passed junction points going to other lines, and contrast total forwarded business with the received business, intrastate, between purely Arkansas points, for the four months ended December 31, 1907, of which the total earnings as I recall are something like $92,000, we got $473.13, intrastate freight in-transit in the four months——

Q. That is in the 1907 period?

A. Yes, sir. And I don't doubt and I don't think anyone would, but that an amount as small as that which would be in-transit at the beginning of the period would be so small it would wipe itself out and certainly could be termed negligible.

Mr. Hill:

Q. That was on the Arkansas intrastate?

A. Yes, sir. My discussion of that feature was intended to remove the stigma on the "in transit" being deducted from the intrastate business. Its connection with the interstate revenues can be more properly taken up in connection with Exhibit T, which will be discussed later.

Mr. Moore:

Q. Now will you take up Exhibit R and explain it as you understand it and make such statement covering it as you think proper?

A. Exhibit R-1 shows that in the four months of 1907, reflected in our exhibits here, and for each month, the total gross revenue derived by the Company on wheat, corn, flour, and other mill products, and cotton. It shows also the amount of such earnings which were apportioned to the state of Arkansas by the
1651 auditor.

In the third column it shows what proportion of the total entire line earnings on these commodities was assigned to Arkansas. That is expressed in percentages.

Then it shows the deductions from freight revenue and the additions to freight revenue on account of adjusting milling in transit and cotton suspense matters for the entire railroad.

I assume we are all sufficiently familiar with what milling in transit and cotton suspense matters are, to pass by an explanation of them here.

I have not any quarrel with the principle of the exhibits, so far as that goes.

Then it shows the amount of these deductions to or additions to freight revenue, on account of milling in transit or cotton suspense, which we apportioned to the state of Arkansas in these four months. And it is a fact, as the exhibit shows, that the apportionment was on the basis of road mileage.

Then the exhibit shows what amounts of these deductions or addi-

tions from freight revenue for the entire line would have gone to Arkansas had Arkansas gotten its same proportion of them as it got of the original gross revenue on the movement.

It shows, as a result, of applying that method as contrasted with the mileage pro rate, there should be added back to Arkansas
1652 earnings in these four months $7,276.04.

I was curious to see how much of that covered intrastate business.

To start with, we all admit the cotton traffic is interstate. We do not have any spindles in Arkansas, at least, not yet. I believe there is a mattress factory using some little of it, but practically all of our cotton goes out of the state and has, in every connection in preparing data and exhibits in this case, been considered as interstate business.

Now as to grain and mill products, I cannot get the data for the four months of 1907. I do not know whether Arkansas agricultural conditions have changed since 1907, but I did get some data on a representative grain moving period.

I had an examination made of the entire grain movement on our road in Arkansas for the last six months of the calendar year 1913, when our freight auditor, who has charge of the statistics of that character, tells me our heaviest grain movement takes place.

I don't pretend to say that 1913 is absolutely representative of 1907, and whether Arkansas agricultural conditions have changed or not is beyond my ken. People who live in the state and have local knowledge perhaps will be able to tell.

However, in these six months of 1913, I find that the grain, and it all has to be grain to start with, it has to be grown before
1653 they mill it—which moved from Arkansas points to purely intrastate points, whether milled or not, that includes the milled-in-transit stuff, yield us revenue in these six months of $1,300.48.

The grain movement and the wheat movement from Arkansas to outside or from outside to Arkansas for milling yielded us $28,300 in the same period.

That is, the grain which went through the milling-in-transit accounts in those six months and the proportion of intrastate in Arkansas is about 1/29 or a little over 3%.

So the milling in transit adjustment set forth in Exhibit R-1 have affected intrastate a percentage which I think in a chemical analysis we would class as "a trace."

Q. Go next to Exhibit S and explain that, what it purports to show and what its value is in this case.

A. Exhibit S is entitled a statement of the amount of "Charges and prepay connecting lines" apportionment to the state of Arkansas of the amounts indicated by that designation. It covers the four months of 1907.

Our Accounting Department gets the earnings which it reports to the State Railroad Commission from its commodity statistical sheets.

It apportions the revenue and tonnage to states incidental to preparing those sheets for the entire railroad. They do not get into those commodity sheets quite all the business. Some items get to the general books which the statistician does not get.

1654 So, to bring those commodity sheets up to an agreement with the Company's general ledger, which represents the actual earnings of the railroad, they throw into their state assignment of earnings this figure which is called "Charge and prepay connecting line" and it has been their practice to spread that between states on the basis of road mileage.

That is exactly what happened in this Exhibit S.

Now, the state accountants have re-prorated that amount to Arkansas on the basis of the other earnings which were directly assigned.

If I were going to make that kind of an assignment I would do it on that basis.

Again, however, I want to call attention to the fact that that does not touch a single dollar of the intrastate revenues which we have set up in our exhibits here.

As a further illustration along that line, in Mr. Douglas' original affidavit in this case, he got his intrastate earnings and then deducted them from this state assignment we have just discussed, and said the balance was interstate.

Now when we make the actual assignment in 1913, and come within 1% of Mr. Douglas' intrastate figure, although our method was actual and his inherited this same arbitrary pro rate, and set up against that the actual location of interstate revenues, using

1655 this equivalent mileage which has been discussed here so much, we come very close to Mr. Douglas on his interstate freight revenue. So there was not such a great deal of vice in his methods after you get through. He happened to hit it pretty close.

Q. Go next to Exhibit T and explain that.

A. I do not just recall Mr. Simson's explanation of this exhibit, but I think I understand it thoroughly, and its purpose.

It shows the amount of freight revenues which were in-transit in each of the months from July, 1905, to June, 1914, inclusive. And it sets out in red ink the figures for the last four months of 1907.

I noticed when you take the figures for September, October, November and August, which just preceded them, and which is involved in this in-transit adjustment which we have been discussing here, that those with one or two other exceptional months, have the biggest amounts that were in-transit in any of these months.

That reflects again the abnormally heavy volume of business that was moving in that period.

So we have picked a period for the purpose of showing earnings and expenses on the earnings side at least, that showed good, fat earnings.

That goes back again to the proposition in Exhibit 35, where we showed what a large proportion of that year's earnings those four months were.

1656 Q. Now take up Exhibit U and explain that?

A. Exhibit U refers again to this suspense transit freight and shows that if we put it all back and set four months up on a level basis, in allowing for the contraction in business in September, and make a proper assignment of the amounts on the revenue basis to Arkansas, that Arkansas' gross earnings for these four months would be increased $27,316.22.

I can only repeat what I have said as to our actual assignment of intrastate freight revenue and also to the contrast between our method of assigning interstate revenue which came very close to Mr. Douglas' old method and this arbitrary adjustment.

Q. Go now to Exhibit V.

A. Exhibit V is built up from Exhibits R, S and U and embraces the effects upon Arkansas revenues as shown by the state accountants as a result of their re-apportionment of milling-in-transit and cotton suspense, this "charge and prepay" balancing figure, so-called; and the in-transit freight item, which is reflected in Exhibit U.

It makes the statement that the result is to put the Company's earnings upon a received basis.

Now as to what the earnings in Arkansas were, and their proper apportionment, I want to repeat again that this exhibit has no effect upon the intrastate earnings.

There is another thing that struck me between the eyes when I looked at it, and made me wonder what the purpose of
1657 the exhibit was.

I do not mean that as sarcasm, but before I had read the exhibit. It brought out quite materially less earnings per ton mile for Arkansas traffic than on the entire line.

I knew we were poor in Arkansas, but I have not seen any such figures recently and did not know just how poor we were.

Q. Go now to Exhibit G, and explain what it purports to show and the effect of it, if any, upon the exhibit filed by the Company.

A. Exhibit G was discussed here, in connection with the direct allocation system of Mr. Douglas and the new formula, this afternoon.

Under Exhibit G there has been shown the effect of correcting the error made in Mr. Douglas' assignment of the Memphis terminal expenses in 1913 to Tennessee instead of to Arkansas, and the resulting discrepancy from our having based our equation on his figures, which did not include all the proper Arkansas expenses, while ours did.

Now following Mr. Simson's process, which I concur in and find is correct, if Mr. Douglas had had the right figures in Arkansas our equating process would have assigned to Arkansas for the four months of 1907 on the total business of Arkansas, freight and passenger, intrastate and interstate, mail, express and baggage, $23,000 less expenses than we did assign.

1658 I think it is readily understood how that could double up, under the circumstances.

We did not discover the error that had been made in the applica-

tion of the old formula until it was called to our attention by this exhibit and the discussion by the state's accountants.

That stops again short of the goal all our exhibits were aimed at, and I was curious to see where it worked out.

Taking the change Mr. Simson makes and his reduction of Arkansas operating expenses $23,080.62, and working that out through all the calculations that we have made in our Exhibit 27-A, I find that insofar as the intrastate freight and passenger are concerned the gross earnings shown on that exhibit still leaves us with insufficient money to pay operating expenses before we come to taxes, by $807.23. So as we say, we are still "in the red" after making that adjustment; and there is not any return upon the intrastate traffic in those four months.

Q. Or any money to pay taxes?

A. I said we were "in the red" $807.23 on operating expenses alone. I did not go any further, because when I run up against a deficit I stop.

Q. Will you next take up Exhibits H to P and also Exhibit Z, as amended by the supplemental exhibits filed under the same letters with the figure "1" added?

A. Beginning with Exhibit J-1, this exhibit, as I under-
1659 stand it, and the principle upon which it has been prepared, there is set up as the gross earnings in Arkansas for all classes of traffic combined, for the four months ended December 31, 1907, an amount which is arrived at in the following way:

There is first set up in the exhibit the amount of $33,905,028.64, which are the earnings of the entire Frisco lines north of the Red River for the year ended June 30, 1908, of which the four months we have been discussing were, of course, a part.

Against that amount of entire line earnings is applied a percentage of 36.34. That percentage is arrived at upon Exhibit H-1 and reflects the proportion which the earnings of the four months ended December 31 on the entire railroad were for the average of the five years ended June 30, 1908, 1910, 1911, 1912, 1913.

So that in the first move that is made in Exhibit J-1 they set up as the earnings of the entire line for the four months ended December 31, 1907, the average proportion which a similar four months were in a total of five years, and say that this is a proportion of the earnings of the year ended June 30, 1908, which would have fallen into the four months ended December 31, 1907, if it had been a normal period.

Now, that is the principle of getting set up first for the entire line what is called here a "normal four months gross earnings."

1660 The next step, and that is based upon Exhibit I-1 is to take from the Company exhibits filed in this case an apportionment of earnings to Arkansas under the new formula, so-called, filed as Exhibit 1, first for the four months ended December 31, 1907, appearing in Exhibit 27-A, and then for the full fiscal years ended June 30, 1910, 1911, 1912 and 1913, appearing in the Company exhibits indicated by number in Exhibit I-1.

In Exhibit I-1 there is then determined what percentage the assignment of earnings to Arkansas in the new formula was of the entire line actual earnings for the same periods. The result again being a five years' average. And that percent, which is in this instance 10.22, is carried over into Exhibit J-1 and applied against the amounts which have previously been set up as 36.34% of the year 1908 actual entire line earnings, to represent on that percentage basis the hypothetical earnings, or what has been called in the state's exhibit, "a normal average earning" for those four months. There was then set into Arkansas this 10.22% of that hypothetical four months' earnings, and the result is called the earnings in Arkansas for the four months ended December 31, 1907.

Now that same plan has followed with all the operating expenses, but there it stops.

Taxes have not been averaged nor has hire of equipment, nor, in the last analysis, the value of the property.

1661 Exhibit K-1 is in principle the same as Exhibit J-1. That is to say, it is put up on an average basis, the difference being that the four months' earnings figure split off from the year's figure is in this instance a mathematical average four months of an average five years.

Again, the same percentage of this amount is set up as Arkansas earnings. This is also true of the expenses.

But here again the averaging process stops short of the taxes, the value of the property and hire of equipment, and rentals.

Q. Did it include rentals?

A. The remark as to rentals in Exhibit K-1 applies also to Exhibit J-1.

Exhibit M-1 is built up upon the same principle as Exhibit J-1, with the exception that the four months' portion of the entire line earnings set up as a basis for apportioning earnings to Arkansas is based upon an average of six years rather than five years as in the other instance.

This accounts for the slight variation in percentages that are drawn from Exhibit L-1.

In assigning, however, a proportion of this hypothetical four months' earnings to Arkansas, the same per cents that were arrived at in Exhibit I-1 are here applied where five separate year periods were the basis of the average.

Exhibit O-1, based upon Exhibit H-1 and Exhibit M-1, assigns as the normal average earnings of the entire line for the

1662 four months ended December 31, 1907. Again, a percentage based upon five years' entire line figures. But assigns of that amount to Arkansas a new percentage based upon, as Exhibit N-1 says, "Figures taken from the Company exhibits but assigned to Arkansas under the old formula."

I desire to state in that connection that these figures of expense assigned to Arkansas under the old formula and appearing in the Company exhibits referred to here in Exhibit N-1, are only in those exhibits as the basis for an equation.

Further, a. to Exhibit O-1, here again they have stopped their

averaging process before they get to taxes, rental, value of property, hire of equipment, and so on.

Q. How about Exhibit M-1?

A. The same applies to Exhibit M-1.

Exhibit P-1 is based upon Exhibit N-1 and H-1 and here again the mathematical method of averaging steps into the exhibit, instead of the percentage relationship in setting up a four months' average earnings for the entire railroad.

But the per cents applied against this, in assigning a proportion of it to Arkansas, both earnings and expenses, are those in Exhibit N-1 and are based upon the old formula, the results of which are used only by the Company for the purpose of equation.

Exhibit Z-1 is a contrast of Exhibit Y and Exhibit O-1.

1663 Q. Did Exhibit P-1 also stop short of averaging taxes, and so on?

A. It did not average taxes, rentals, hire of equipment or value of the property.

Exhibit Z-1 is a comparison of Exhibit O-1 and Exhibit Y.

Exhibit Y has not yet been touched upon, but it is simply a copy of those two exhibits and a contrast thereof, and the criticisms I have offered as to Exhibit O-1 apply with equal force to that portion of Exhibit Z-1 which reflects the figures carried from Exhibit O-1.

I am sorry I was so voluminous, but I wanted to get into the record a clear statement of the proposition as I understood it.

The average is a great leveller. It puts everything on a common level, just like death.

I have had some considerable curiosity to see just what the effects of this average system were.

The original exhibits filed, running from Exhibit H to Exhibit P, inclusive, and Exhibit Z, which were supplanted by Exhibits H-1 to Exhibit P-1 inclusive, and Exhibit Z-1, included the expenses of one railroad mileage and the earnings of another, as has been discussed here.

But the differences in dollars and cents are sometimes pretty large.

In Exhibit H the expenses set up in that exhibit as
1664 the basis for the five years' average were $9,772,001.04 less than those that finally got corrected in Exhibit H-1. That is the entire line expense figure.

The four months' figures shown in Exhibit H as a basis for the five year average, exceeded in total the figures upon which the five years' average in Exhibit H-1, were based, by $3,549,925.76.

Mr. Moore:

Q. As I understood you, you state that the figures in Exhibit H were $9,000,000 less than in the new exhibit?

A. If you understood that, that is incorrect; they are $9,772,001.04 more than in Exhibit H-1.

The process of correction is a reduction of the expense figures in each and every instance.

Exhibit I which together with Exhibit H furnishes the average

percentages applied to Exhibit J, or perhaps I might say the percentage average Exhibit I also sets up the total expenses much greater than Exhibit I-1.

The figures there exceeded those in Exhibit I by $8,694,867.92.

Now, when those are corrected, and ironed out by the averaging process, and we come down and apply the results to Exhibit J-1, strange to relate we only cut down the percentage of return brought out in that exhibit, from 6.66% to 6.62%.

Without being flippant, I might say here that the averaging system, like charity, covers a multitude of sins.

1665 Now, taking Exhibit K-1 and contrasting it with Exhibit K, it is built up also of the percentages in Exhibits H and I, in which these large differences were corrected in the operating expense figures, to match Exhibit H-1 and I-1. And when the corrected figures involving these large changes are carried down into Exhibit K-1, the percentage of return in Exhibit K-1 is 8.03% as against 8.04% that we had in the original Exhibit K. So the violent changes in the total figures have again been ironed out pretty straight by the system of averaging that has been employed.

I might say that in Exhibit L when the difference in expense figures between that and those in Exhibit L-1 is corrected, the total upon which the average is based is cut down $11,900,000 for the full year period, and $4,363,000 for the four months' period. That is where the six years got in.

But when they carried those percentages from Exhibit L-1, after correcting these differences in the expenses upon which the averages were based, and use them in Exhibit M-1, that shows a return of 6.89% as against 6.94%, which they got before the State made these large corrections in the basic figures—a difference of only five-tenths of one per cent.

So the averaging process there has much elasticity, and it has not made much difference whether you contrasted the earnings of 4,700 miles with expenses of 5,250 miles of road.

Now as to Exhibit M-1, the difference there in the total expense figures on which the average earnings were based, and which are carried forward into Exhibit O-1, was a reduction from Ex-

1666 hibit M to Exhibit M-1, of $8,694,867.92.

But notwithstanding that fact, and the fact that some of these exhibits are contrasted with the Company's assignment under the new formula and some under the old formula we go again to Exhibit O-1, and the change in the percentage of return by reason of the adjustment of that eight or nine million dollars is only four 100ths of one per cent.

Repeating what has been said about Exhibit O, and applying it to Exhibits P, because it is similarly based in a large way, we find there is no difference whatever in the return. It leaves it without a change, regardless of the large fluctuations in the basic figures.

What has been said of Exhibit O-1 is also true of that portion of Exhibit Z-1 which reflects and copies from Exhibit O-1.

It seems to me that illustrates strikingly the fact that under this

averaging system you can do something violent to the basic figures and have no material change in the final result of it.

Q. These figures relate to the entire business, state and interstate?

A. Yes, sir, they relate to the Exhibits H-1 to P-1, and old Exhibits H to P, inclusive, and the new Exhibit Z-1.

The return upon the value of the property is reflected only in Exhibits J-1, K-1, M-1, O-1 and P-1; and those are the ones in which the changes of return that I have shown occur.

That is one reason I do not like that averaging system. It is too elastic.

1667 I think there is another criticism which may be made of it. I have a chart here which I would like to offer in evidence as Exhibit 57.

This Exhibit 57 is intended to show the concrete effect of the ironing out or averaging process which has been employed in Exhibits H-1 to P-1, inclusive, and Exhibit Z-1.

The averaging process I have referred to has absolutely ironed out the earnings of these five years, and is throwing back into 1907 (the 1907 period) some of the higher earnings on a higher basis of rates in subsequent periods.

There is an exhibit here in the case which shows that the intrastate rates, at least, have in most periods been on a higher basis than the two cent passenger rate and the Commission's distance tariff, upon which our intrastate Arkansas revenues were derived during 1907. Yet, notwithstanding that fact, they have given 1907 a slice of the better rates we got in 1913, until we went back voluntarily to the lower basis; and in the intervening years the same thing has been done with this averaging process.

Now, the somewhat cheaper operating cost of 1913 has also been shoved back into 1907 by this averaging process; and it is interesting to note just how violent that is.

There is only one figure which reflects both the earnings and expenses of a railroad—the operating ratio. Those are the entire line figures, the entire lines north of the Red River, with which I am dealing. That is the basis on which the State's average starts.

1668 I have set up on the right hand column of this Exhibit, the cost to the railroad to earn a dollar—what is familiarly termed "operating ratio."

You will note that in 1908 it actually cost the Company to earn a dollar in gross, sixty-nine cents.

Taking the average of the five years, on which Mr. Simson based his percentages, that ratio becomes 67.4 cents.

That is to say, this red line across the chart shows, the ratio derived from Mr. Simson's five years' period, and that shows it cost us 1.6 cents less to earn a dollar in 1908 than it actually did cost us to earn a dollar.

The statement was made by the state that the attempt would be made in these Exhibits H to P, inclusive, and Exhibit Z, to show a normal average condition. We were trying to show the actual condition, so far as we could get at it in 1907, and the intervening periods. True, we took back to 1907 an extra cost determined in

two months of 1913, upon the physical facts of the 1913 test period, but when we got back to 1907 we applied it to the actual tons, passengers, ton miles, passenger miles, state and interstate, that were transported back there, and set up the earnings we actually earned (at least so far as intrastate business is concerned) in 1907, and no portion of the 1913 earnings, and so far as the assignment of expenses to the State of Arkansas is concerned, the change we made in the assignment under the old formula was slight compared to the total expenses.

But what we carried back was the results, or the relation of the results of the application of the new formula, Exhibit 1, in
1669 1913, to the results of applying the old formula in that period.

Whatever actual allocations to the state Mr. Douglas made—and Mr. Simson has said here that he prefers Mr. Douglas' method—were preserved or disturbed very little, by our equating process.

Now I want to look at this thing from another angle:

If it be the idea that you must get a five year average period to get normal conditions, then how about 1913? You cannot reach into the future and get five years. You must go back. It must be in the retrospect.

Let us suppose the issue were in 1913, a 1913 issue: We would have said then, under the state's plan, that it cost us 67.4 cents to earn a dollar in 1913; where it actually cost us 65.9 cents—an absolute distortion of the facts.

I want to say in explanation, the reason that the operating ratio or cost to earn a dollar in gross is shown in tenths of a cent is that that is necessary where the amounts involved are as large as those involved here. Where gross earnings amount to forty million dollars, one-tenth of one per cent in the operating ratio means forty thousand dollars. And, furthermore, this fractional or decimal expression is one we usually give in setting up these operating ratios.

To sum up, I do not believe that an averaging system so elastic as this one, and which so palpably distorts the facts in the earlier periods, can have much weight in showing the actual conditions in those earlier periods.

1670 There is one thing I want to say further:

I made several references to the fact of failure to average taxes. Taxes in Arkansas have *in*creased very materially in recent years, and I can see no good reason why, if we are going to follow the averaging system at all, they should not have been averaged. And also why hire of equipment and rentals should not have been averaged.

If we are going to put part of the earnings and expenses in 1913, higher or lower as either may be, back into 1907 or 1908, isn't *it* fair to put back an average property value?

It is fair to assume if you had those increased earnings and expenses back there you would be using more property in producing this additional gross and net, and spending this additional money for operating expenses.

So, it seems to me, if you are going to do any averaging it should be done all around.

I thought that would be well stated here because it was somewhat mixed up in discussing the individual exhibits.

At this point the further hearing was adjourned until tomorrow, Saturday, November 14, 1914, at ten o'clock in the forenoon.

1671 ST. LOUIS, November 14, 1914.

Met pursuant to adjournment as above on Saturday, November 14, 1914, at 10 o'clock in the forenoon:

The following proceedings were had:

Direct examination of Mr. T. A. Hamilton continued.

By Mr. Moore:

Q. Mr. Hamilton, you referred yesterday to Mr. Simson's Exhibits J-1, K-1, M-1, O-1, P-1 and V-1, and made some explanation in connection with them.

I would be glad if you would make a statement showing the differences in the methods adopted and applied in the preparation of those exhibits and those which were prepared by you and filed by you.

A. As I understand it, you desire a contrast of the methods employed in preparing the exhibits?

Q. That is practically what I want.

A. Those presented by the state and now revised, and the methods pursued in presenting the railroad exhibits?.

Q. Yes, that is it.

A. Exhibit J-1 which replaces old Exhibit J, purports to show an income account and a net return upon the value of the property of the Company in Arkansas for the four months ended December 31, 1907.

It is based, as to earnings and expenses, upon an average of five years' earnings of the entire line, north of the Red River, resolved into percentages which are applied to the actual earnings and
1672 expenses of the entire line for the year ended June 30, 1908.

As a result of applying these average percentages a figure, which purports to represent the four months' average earnings and expenses of the entire line, is set up. And against the earnings and expense figures for the four months obtained in this way, are applied still other percentages, based upon the relationship of the entire line average percentage assignment of earnings and expenses to the assignment of earnings and expenses made in the Company exhibits under the new formula.

The result of applying these latter per cents to the entire line four months' average earnings and expenses determined on a percentage basis, is set up as representing what the exhibit calls "the earnings and expenses of Arkansas for the four months ended December 31, 1907."

I realize that the description I have just given will at first blush appear somewhat involved; but, nevertheless, that is an accurate description of the process which has been employed in getting at the results which the state proposed to substitute for the carefully prepared, minute detailed analysis which we have made under the formula filed as Exhibit 1.

Exhibit K-1, the method employed in preparing the figures shown in this exhibit, is somewhat different from that employed in preparing Exhibit J-1. In that, instead of setting up as four months' entire line earnings and expenses, an average percentage re-
1673 sult, there was set up a straight mathematical average figure, arrived at by dividing the four months' average figures in five years by five.

To the result so obtained there is again applied the average percentages based upon a five years' average of entire line earnings and expenses as compared with the Company's assignment under the new formula.

So, here again, in Exhibit K-1, we have a result which purports to be the earnings and expenses of the Company in Arkansas for the four months ended December 31, 1907, which is based first upon a mathematical average, this time; and second, upon an average percentage.

Now Exhibit M-1: This exhibit is somewhat akin to Exhibit J-1, with this exception, however, that the four months' entire line hypothetical earnings and expense figures are arrived at first, by the application to the years' actual figures of 1908, and an average percentage based upon six years this time instead of five years. There seems to be some lack of consistency even in the average percentage method employed in this exhibit, because to the result obtained first upon a six years' average percentage basis there is applied in order to get an assignment to Arkansas, the results of Exhibit I-1, which is based upon a five years' average percentage basis.

Exhibit P-1: This exhibit is in certain respects the twin of Exhibit K-1, inasmuch as it begins with a mathematical averag-
1674 ing proposition—that is to say, dividing five years' earnings and expenses by five instead of applying a five years' average percentage, in order to set up a hypothetical four months' earnings and expenses for the entire line.

But right there the family resemblance between Exhibit P-1 and Exhibit K-1 stops, because to the hypothetical four months' entire line earnings and expenses is applied another new percentage, which is an average percentage of relationship between the expenses assigned to Arkansas under the old or Douglas formula, in this instance, and the entire line actual expenses for the various periods.

Now, as to Exhibits O-1 and Z-1:

They are in the same family as the others—they are first cousins, anyhow.

The methods that I have discussed as being those employed in preparing these exhibits are carried right into those two also.

I realize that perhaps the explanation which has been made of the exhibits of the state sound rather involved. But the process

that has been employed in their preparation is such a mass of averages, average percentages, mathematical averages, five years' average and six years' averages, that it is pretty hard to give other than an involved explanation of them.

Now, as to the contrast you spoke about, Mr. Moore: Contrasted with the scheme which I have just described, as employed by
1675 the state, is the simple and direct method the Company has employed in its exhibits, which starts first with a real attempt at direct cost accounting and an effort to charge the various classes of business, all traffic, with the expenses, upon the basis of the use of the property which incurred those expenses.

In order to bring out these facts, a large sum of money was spent by the Company, a very large sum of money, and a careful, detailed analysis, based upon first hand information and facts as to operating practices and conditions and results, was made.

These analyses and tests could not be made for any other than a current period, as they had necessarily to be carried on concurrently with the operation of the railroad, and as its ordinary business of transportation was conducted.

The tests were made, and that is several times in the record and I think we all know it, for the last two months of the calendar year 1913, which was just as soon after the United States Supreme Court handed down its Minnesota Rate Case decision as we could work up a formula which, in our judgment, at least, reflected the expressed opinion of that Court as to these matters; and could go ahead and make our arrangements to make these tests and obtain the factors and information upon which to base the use unit division.

Now, there is another phase of the proposition that has
1676 been—if Judge Hill will pardon me—somewhat caricatured here; and that is the equation process discussed so much, by which these tests were carried back to 1907.

I think that has been as clearly explained as can be in the Company's exhibits, but I want to say this further about it:

This equating process, as a matter of mathematics is sound. I do not think anybody will dispute that. It needs only the assurance that the Company's old formula results, upon which the equation rests, have been obtained upon a uniformly applied basis throughout all of the periods involved.

That this has been done I am prepared to state, without qualification. I have had a careful, minute and detailed check of the application of the old or Douglas formula throughout all of the periods covered by our exhibits, made under my personal direction, with the result I have just stated—that the application has been uniform and correct, with the exception of Mr. Simson's Exhibit G, which I have taken into consideration.

I do not think there can be any real question as to the soundness of the method followed in the Company's exhibits. It seems to me the exhibits can tell their own story.

They show conclusively, in spite of the various attacks which have been made upon the principle which underlies them,
1677 that, still, the Company has not sufficient revenue on its intrastate freight and passenger business in the state of Ar-

kansas to pay all operating expenses and taxes incurred in the conduct of that business.

There is just one other angle to this same proposition, that I would like to discuss in this connection, if I may.

Q. Proceed.

A. The state has not in this case, as it did in the Iron Mountain and Cotton Belt Cases, made any attempt to develop exhibits based upon cost accounting principles, or to exhibit them to the court—at least, they have not yet been introduced.

Some criticism has been made by the state's witnesses of the Company's methods under the new formula of dividing expense of a prior period upon factors developed by physical tests and studies in a subsequent period.

We have attempted to show here a similarity of operating and traffic conditions relatively as between freight and passenger, state and interstate traffic, in a prior period and in a subsequent period, where our physical tests were of necessity conducted.

We have not shown these to a hair splitting degree of exactitude. That would be nothing short of miraculous, if we could do it. I would have been suspicious of the figures myself, if they came out that way.

1678 But it should be apparent, in my humble judgment at least, that our normality figures, Exhibits 33 to 41, inclusive, show a similarity of operating and traffic conditions in the various periods as contrasted with the test period of 1913, which would appear to be an ample justification for carrying the physical factors contained in 1913 back to the earlier period.

It is true that our total cost to earn a dollar has been somewhat less in 1913 than it was in the years that preceded it. Notably so as compared with 1907. But that does not distort the relationship between freight and passenger, intrastate and interstate traffic and operating conditions.

Q. You stated in your testimony yesterday, in discussing the state's Exhibits J, K, M, O, and P, that the averaging process had come to a halt after dealing with the earnings and expenses: Will you file an exhibit carrying the average percentage out to its logical conclusion?

A. Yes, sir. I have prepared such an exhibit and will file it as Exhibit 58.

Q. Make any explanation you desire in connection with that.

A. Exhibit 58 shows an extension of the state's average percentage method to include an averaging of taxes, hire of equip-
1679 ment, rentals and assessed value of property (the later multiplied by two).

It starts with the net operating revenue, which is the gross operating revenue less operating expenses, shown in the state's Exhibits indicated.

All of these exhibits cover the four months ended December 31, 1907.

Inasmuch as the taxes which the Company has paid in Arkansas have been increased quite materially in recent years, and if we are

not to apply the actual earnings and expenses, but use a hypothetical average, it occurred to me that we should also average the taxes.

We have to pay those out in order to do business just as much as we do our operating expenses.

Going a step further, I felt it was proper to average the credit for net rental and hire of equipment, and to reflect the average in 1907, the same as it was done for earnings and expenses.

In the third proposition, property value, if you are going to put an average of the earnings and expenses and suppositiously, at least, an average of the use of the property back in 1907, it seems to me eminently fair to do the same thing with the property value.

The property value average is arrived at by taking the assessment on the 1908 basis and adding thereto in each of the subsequent years
the additions and betterments agreed upon as to the total for
1680 the five years, by the chief engineer of the railroad and the state's engineer, setting up in that way twice the assessed value plus additions and betterments in each year; and getting a total and making an average for the five years.

But of that five years' average I have applied not one-third, but 36.34%, the average percentage of earnings which Mr. Simson sets up in his Exhibit H-1.

I wanted to make the averaging process throughout consistent, so I followed it out to the last detail.

This exhibit shows on the basis it was prepared, and which I have explained, a return upon all the traffic of the Company within the state of Arkansas, upon the hypotheses underlying the various state exhibits referred to in the left-hand margin of that exhibit.

I want to say further in connection with Exhibit 58, that I do not pin any real faith to the method that underlies it. I do not believe in the averaging system, but on that system this is what it shows, when you carry that system into all the phases of the proposition.

Q. Mr. Simson made some lengthy explanation of his Exhibits W-1 and X-1 on pages 1442 to 1449 of the record.

Will you explain those exhibits, the principles upon which they are based, and give your views concerning them?

A. In these Exhibits W-1 and X-1 the state has worked out in detail changes in Mr. Douglas' assignment under his old formula
for the months of October, November and December, 1907,
1681 so as to make the figures for those three months agree with the departure which Mr. Douglas made in the application of his formula in the month of September, 1907.

The state's accountants have also, in these exhibits, substituted, to some extent, their judgment of what Mr. Douglas ought to have had in his formula for what he really had in his formula.

I think I have said heretofore in the record, and been somewhat criticised for it, that it did not make any difference whether Mr. Douglas divided his expenses by locomotive miles or car miles, or potatoes, or apples—so far as our purpose was concerned, as long as he stuck to his unit, his basis.

After we re-worked our Exhibit 27-A to put the one month on a parity with the four years and three months, instead of re-working

the four years and three months to put them on a parity with the three months, we had, after that was done in Exhibit 27-A, Mr. Douglas on a uniform basis upon the principle of his formula.

I have said that Mr. Douglas' basis of his formula, when this correction for September is made, becomes uniform and consistent down to June 30, 1913, where our concern with it stops, so far as this issue is concerned.

Q. What have you to say with regard to Exhibit Y filed by Mr. Simson?

A. Exhibit Y is built up and is a composite of the State's Exhibits V, W, and X, and of the railroad's Exhibit 27-A, with
1682 the addition of double the assessed value of the Company's property in Arkansas, divided by three, to get it on a four months' proportion.

In the freight earnings set up in Exhibit Y, amounting to $893,121.69 is included $27,316.22, carried over from the state's Exhibit V, which the state's accountants have put into the four months' period ended December 31, 1907, revenue on the in-transit freight in the earnings of those four months.

In discussing the previous exhibits I have contented myself with calling attention to the fact that the adjustment the state has made of the auditor's in-transit figures had no bearing on intrastate freight earnings.

Now, I want to go a step further on that proposition:

Going back again to our Exhibit 35, I want to call attention to the fact that the earnings of the entire line for these four months of 1907 were a larger proportion of the total earnings of the fiscal year in which they were included than the earnings of any similar four months have since been, of the fiscal year in which they were included.

I cannot conceive of any real justification for arbitrarily inflating the earnings of these four months, as has been done in the state's exhibits, by the simple process of assuming that in-transit freight at the end of December should have exactly balanced the in-transit freight at the beginning of September.

1683 I do not mean to challenge the accuracy of the figures, but the basis upon which they are set up.

If we take out of the freight earnings of Exhibit Y this arbitrary inflation of the in-transit figures carried over from Exhibit V, amounting to $27,316.22, and allow the effect of switching Mr. Douglas' formula around, as is shown in Exhibits W and X, and carried over to Exhibit Y, to stand, even allowing that to stand we come down to a return of a flat 6% upon all the business of the four months within the state of Arkansas—state, interstate, freight, passenger, mail and express.

So when we take out the inflation on account of this in-transit matter from the earnings, then the exhibit would show a 6% flat, instead of 6.53%.

Q. I will now call your attention to the State's Exhibit AA: There is an item appearing in that exhibit concerning Kansas City, Fort

Scott & Memphis guaranteed dividends, which has been set up by the state as an income credit.

I wish you would explain just what that is so there may be no misunderstanding about it.

A. This item you refer to in Exhibit AA, and the same item appears in Exhibit BB, is the rental—or, rather, Arkansas' proportion of the rental of the Kansas City, Fort Scott and Memphis Railroad; it is a line running from Kansas City to Memphis with some branch lines, for which the Frisco Railroad pays for the use
1684 of that property under a 99 year leasehold.

On the face of Exhibit AA and also Exhibit BB this amount is shown as an income credit and it might at first blush appear it was intended to state that this was an earning of some character of the Frisco Railroad. This is not the case in any sense of the word.

Mr. Hill:

Q. Mr. Simson treated that the same way as you did in your exhibit?

A. Exhibit AA does not refer in any way to the correction.

Q. It is the same thing you had in your Exhibit 28?

A. Yes, sir, and it is the reversing of the rental charge of this character which we took out of our figures in Exhibit 28, on the admonition of the Court, because property value was included.

Q. This is exactly the same thing in these two exhibits AA and BB?

A. Yes, sir, exactly.

Q. You have no criticism of the state's accountants doing in these two exhibits the same thing you did in Exhibit 28?

A. Absolutely not, except it is referred to here (indicating) as a dividend and we wanted to make plain what it was.

Q. Mr. Simson explained it was a bookkeeping method and he did exactly the same as you did in your Exhibit 28?

A. This was not intended in any sense of the word as
1685 a criticism of any character, but it simply intended to have it clearly understood so that the Court, who would not have the intimate knowledge we have here of the detail, would not be misled.

Mr. Moore:

Q. Proceed with your explanation of Exhibit AA.

A. Mr. Simson's attention was called, in connection with this exhibit, to the fact that he had neglected to exclude from the earnings the diminution in the Company's revenue, which would have occurred had it been operating under a two cent passenger rate and the Standard Distance Tariff freight rates, on intrastate business.

There would have been some reduction in percentage of return had these changes been made.

The question arose in connection with that as to whether or not there was any stimulation of traffic resulting from the reduction in fares.

There are two exhibits in this case which bear upon that, one local to the state of Arkansas on the Frisco, and one covering the entire country for twenty-five years.

I want to say in that connection that it has been our observation, and the result of study, not only in Arkansas but in other states surrounding it, and from an actual check of the matter, that the diminution in intrastate passenger rates does increase what looks like the intrastate passenger travel; but it is at the expense of the interstate business.

1686 The Company has less revenue from an increased volume of traffic, which results in a reduced volume of interstate traffic, when you get down to the meat of the whole proposition.

That has been the result of our test in Arkansas and Oklahoma and from an actual checking of the travel as it moved.

Q. Now next take up Exhibit BB of the state.

A. It is an exact reflection of Exhibit AA, except it is based upon the old formula, which has been used by the Company here only for the purposes of equation; and, consequently, that it includes the Memphis terminal expense which Mr. Douglas charged to Tennessee instead of Arkansas, as is shown in Mr. Simson's Exhibit G.

In both these exhibits, however, the entire business of the carrier in the state of Arkansas, on the bases indicated, is included; and there is no attempt to separate the expense of either between state and interstate freight and passenger or to set aside mail and express.

Q. The diminution in revenue would affect that Exhibit also, would it not?

A. Yes, sir, the same diminution, because it is in the same period.

Q. In discussing Exhibit CC filed by Mr. Mayer, he made some remarks in regard to the proportion of empty car miles of a train to loaded car miles and the proportion of local train miles to the total train miles as shown in his exhibit for the test months

1687 of November and December, 1913: What have you to suggest in connection with that matter?

A. Mr. Mayer apparently was not very familiar with his Exhibit CC, and the facts which it reflects, so far as it goes.

He seemed to be under the impression—or, at least he made the statement—that the intrastate freight was burdened with a larger proportion of empty car haul than the interstate freight.

He said he based his assumption on the idea that the larger proportion of the empty car miles were made upon local freight trains, upon which a larger proportion of the intrastate business was carried.

Now, I agree with him on his last proposition, that the latter proportion of the intrastate ton mileage does move on the local train or its twin brother, the mixed train (which is a freight train with a coach on it).

But Mr. Mayer's assumption as to what his Exhibit CC shows as to the proportion of empty car miles which are hauled in local trains and the proportion which the local train mileage is of the total train mileage, is absolutely in error.

The figures on his Exhibit CC for the months of November and December, 1913, show, that considering the local and through trains

reflected there, 16% of the empty car mileage, was upon the local train.

1688 Certainly that is not a preponderance.

Mr. Mayer's second assumption was, as he stated it in the record, when this proportion of empties on local trains was called to his attention, he assumed that 10% of the total train mileage was all the local train mileage amounted to.

His Exhibit CC shows that again he was in error.

From the face of it we find 23.87% of the freight train miles in November and December, 1913, were locals.

Looking at it from every conceivable angle, and as a mathematical proposition, the figures in the exhibits here will demonstrate that Mr. Mayer's contention that the intrastate freight under the method employed in the Company's exhibits was unduly burdened with empty car haul, is absolutely erroneous.

Q. Mr. Mayer seemed to be of the impression that you had done something violent by your equating process in the maintenance of way expenses of 1907:

He said, in effect, that your plan had the effect of carrying back the 1913 engine ton mile to that year of 1907: Is that a fact?

A. I think he said that our plan had the concrete effect of carrying 1913 engine ton miles back to 1907, when we made our division of maintenance line expenses between freight and passenger.

Answering your question, I will say, no, sir, it is not a fact.

1689 Mr. Mayer's assumption was apparently based upon the different relative proportions of passenger and freight train miles of the 1913 test period as contrasted with 1907.

Now, if we had been engaged in the proposition of setting up two sets of train mile figures and stopped there, there would have been some disparity. But what we are endeavoring to do is to divide maintenance of way line expense between freight and passenger service.

Hower, taking Mr. Mayer's statement at its face, that there were different relative proportions of passenger and freight train miles in the 1913 period as contrasted with 1907, if I may be allowed to imitate him to some extent, I want to say that this is just another illustration of why the engine ton mile is a good and consistent basis for a division of maintenance of way expenses between freight and passenger, even when we carried it back from 1913 to 1907 through an equating process.

I want to say in this connection that I have been at a good deal of pains to go into the detail of this matter, because I had faith in our method, and I am glad to say that that faith was justified by the facts.

The revenue train miles of the 1913 fiscal year, the figures upon which our equation rests, were 52.7% freight.

Under the new formula we assigned to maintenance of way expense in the year 1913, 53.7% to freight, a very close relationship between the engine ton mile and the revenue train

1690 mile, insofar as the engine ton mile affects the division of maintenance of way expenses.

Certainly there was no distortion.

The revenue train mile- of the four months ended December 31, 1907, were 58.07 freight.

The result of assigning maintenance of way expenses under the new formula method in the 1907 period; that is, the equation of the old formula results, assigned to freight 58.44% of maintenance of way expenses.

Here we have in 1913 52.7% revenue train miles, 53.7% maintenance of way expenses assigned to freight.

And in the 1907 period we have 58.07% revenue train miles and 58.44% maintenance of way expenses assigned to freight.

There is not much distortion in that. It is a close relationship all the way through.

I want to go a little bit further on this proposition.

Mr. Simson pinned his faith to Mr. Douglas' old formula.

In 1913, as I have previously stated, the revenue train miles were 52.7%, freight.

The new formula assigned to freight in that same period 53.7% of maintenance of way expenses. And the old formula assigned 53.13%.

You could cover the three of them with a postage stamp.

1691 Mr. Douglas' basis was the revenue train mile, where we used the engine ton mile.

Apparently they are — pretty close relation in their actually applied effect.

That was in 1913. In the four months of 1907, the revenue train miles were 58.07% freight. The new formula assigns of maintenance of way expenses 58.44% to freight and the old formula assigns in that same 1907 period 57.88% of maintenance of way expenses to freight.

If we have done anything violent in the division of maintenance of way expenses between freight and passenger by our equating method, it is evidently not apparent from the results we obtained.

In this connection I would like to say that this matter was discussed somewhat by Mr. Mayer on pages 1419-20 of the record.

Q. Have you prepared an exhibit in which you show a revision of the state's Exhibit O-1 to the division between freight and passenger, interstate and intrastate?

A. Yes, sir.

Q. Please file that.

A. I will file that as Exhibit 59.

Q. Please explain that Exhibit 59.

A. Exhibit 59 starts out with the figures in state's Exhibit O-1. In the column headed "Total business," I have set up the earnings and expenses appearing in Exhibit O-1.

1692 As to the subdivision of earnings I have followed Mr. Simson's method on the five year averaging proposition, and using the five year figures appearing in the Company's exhibits in this case, arrived at under the old formula of which Mr. Simson's Exhibit O-1 is based, have determined what Mr. Simson under

his plan would call "average freight and passenger earnings for the four months' period."

Following the same method still further, however, based upon the figures set up in the Company's exhibits, I have determined what would be the average intrastate and interstate proportion of freight and passenger earnings.

I have in all the calculations included mail and express with the interstate passengers; my purpose being to get at the intrastate figures.

In this way I have gotten what the state's plan would call a four months' normal average earnings, intrastate freight, interstate freight, intrastate passenger, and interstate passenger, plus mail and express.

As to the operating expense, I have assigned Mr. Simson's figures contained in his Exhibit O-1, between freight and passenger, by getting a five year freight and passenger average proportion in dollars and cents, based upon the old formula figure appearing in the Company's exhibit, for the purposes of equation; and have applied the percentage relation of these results to the figures appearing in Mr. Simson's Exhibit O-1 as an average expense for this four months' period.

1693 In this way I got freight and passenger expenses on an average basis.

I then determined an operating ratio of freight and passenger separately, based upon these average earnings and average expenses, and applied that to the interstate and intrastate revenues which I had set up in the exhibit, and determined the expenses of freight and passenger applicable to the intrastate and interstate business.

Of course, I built up in that way a constructive figure and on the relationship of that constructive figure determined from the operating ratio, I determined the freight and passenger expenses obtained upon the average plan, which is the same principle as that employed by the state in its exhibits.

Now that basis carries with it the assumption that it cost no more to earn a dollar in intrastate traffic than it did to earn a dollar in interstate traffic.

Considering the average length of haul of the two classes of traffic in Arkansas that, of course, is fallacious.

So, to be conservative, I assume that the intrastate passenger business would cost only 10% more and intrastate freight business only 25% more than the interstate.

In order to bring in that extra cost I have added 10% to the intrastate expense, determined upon a flat ratio basis, deducting a like amount in dollars and cents from the interstate, on the passenger side.

1694 I followed the same plan with the freight, only there I used an extra cost of 25%.

The result of these calculations I have set up as the expenses intrastate, interstate, freight and passenger, mail and express business —mail and express being included with the interstate passengers in all the calculations.

I have taken the taxes for the four months' period in each of the five years, totaled them, and averaged them on Mr. Simson's plan and set up as the total taxes for Arkansas in the exhibit, as the result of this averaging method, $74,695.04.

This I considered to be a logical carrying out of the state's averaging method, which they apply only to the earnings and expenses.

I have followed the same plan with the net income credit arising from the rentals and hire of equipment; and have followed the system of averages in getting at the property value, which I have already described in another connection.

So, as the result of this carrying the average method out to a division between freight and passengers, intrastate and interstate, and taking in all the factors, I find that I got a return upon the intrastate freight traffic of 2.6% and on the intrastate passenger traffic a return of 1.55%.

Upon the total intrastate business a return of 1.95%.

I neglected to say how I assigned the taxes and rentals
1695 and property value between the various classes of traffic, after I had set them up on an average basis:

Following the theory advanced in the testimony of Messrs. Ludlam and Wharton and Wilmering, in the Iron Mountain Case, I have apportioned these taxes, this income credit, and the value of all the property, as shown in the exhibit, on the basis of all the operating expenses.

There is one other phase of this exhibit, which is the total business column; in which I have shown the state's own figures for earnings and for operating expenses as per Exhibit O-1; but have included as explained previously, an average on taxes, income credits and property value. That is a logical carrying out of the averaging plan.

When I do that the exhibit shows that we got a return upon all our business in the state of Arkansas of 5.51%.

Q. Mr. Mayer in testifying had something to say about weather stress, wear and tear on the tracks, in connection with the division of maintenance of way expenses on the engine ton mile theory: What have you to say in connection with that?

A. Mr. Mayer had a pamphlet, which was considerably discussed in the record. It is state's Exhibit DD.

I understood he, in a measure, subscribed to some of the bases, which the pamphlet discusses and which are defined in this pamphlet; and I understood Mr. Mayer to subscribe to at least a part
of the proposition, that the tentative conclusion of someone
1696 Mr. Mayer quoted, appearing on page 5 of the pamphlet, that wear expenses should be divided on the basis of gross ton miles; and the weather expense, as it is put here, on the basis of revenue train miles.

I was curious to see how that would work it and how it would compare with the engine ton mile division.

Mr. Hill:

Q. You did not understand Mr. Mayer to subscribe to the revenue train mile division?

A. I don't know what he did subscribe to. I was quoting from the pamphlet that he did subscribe to.

Q. My recollection of his testimony is that he did not subscribe to the revenue train mile theory.

A. I must state frankly that I don't know just what he did subscribe to in that connection. But the pamphlet introduced in evidence was the basis of these figures.

Mr. Moore:

Q. Proceed, Mr. Hamilton.

A. I want to say that I do not recall—and of course the record will show—that Mr. Mayer did subscribe to the revenue train mile division. But quoting from page 5 of the pamphlet he introduced as an authority on the subject, that says the tentative conclusion of whoever it was Mr. Mayer was quoting, was that you should make first a subdivision of the maintenance expenses between wear and tear and weather stress, or elemental wear; and then a subdivision of the wear and tear upon the gross ton miles, the pamphlet says, and the weather stress upon the revenue train mile basis. All of this between freight and passenger, of course.

1697 Mr. Mayer, however, did express the opinion, and, among others, that the 10% of track maintenance was all that was due to wear and tear.

I don't know whether he professes to expert knowledge on the subject, but he said that was his judgment. He may have said from 10% to 25%.

Taking his 10% illustration and confining the gross ton miles to that 10%, and the revenue train miles to the other 90% of the line maintenance expense, set up in the Company's exhibits for the months of November and December, 1913, I find that the net effect of changing from the engine ton mile basis to this basis I have just been discussing—the basis of the pamphlet which Mr. Mayer introduced in evidence, and the 10% weather stress, is to assign to freight $57,663.62.

Whereas, the engine ton mile basis assigned $56,410.31.

A decrease on the freight side of $1,253.31.

That, of course, is reflected in the shape of an increase on the passenger side, where the engine ton mile basis assigns $55,983.21 as contrasted with $54,729.90, under this 10% weather stress gross ton mile revenue train mile plan.

Now, if the portion we set aside for wear and tear had been 25% instead of 10%, owing to the fact that the freight gross ton mile is larger than the passenger gross ton mile; and the train miles

1698 practically 50% and 50%, 25% weather stress set aside would practically even the thing up, or come very close to it, and almost bring an exact engine ton mile result.

Mr. Hill:

Q. Let me see if I understand you:

You have taken 10% of line maintenance of way and divided

that on the gross ton miles and then taken 90% and divided it on the revenue train miles?

A. Yes, except in the exhibit I have taken a 10% and not the 25%.

Q. You take 10%, which represents the traffic injury to the track.

A. I wouldn't say that.

Q. I understand it is used as a representative factor—and you have divided that on the gross ton miles between freight and passenger.

Then you take 90% representing elemental injury to the track, and divide that on the train miles.

A. Yes, sir, but I do not subscribe to the 90% and to the 10%.

Q. I understand that. You are like Mr. Mayer in that respect. You accepted those figures without vouching for their correctness.

A. Yes, sir, I am not an engineer.

Mr. Moore:

Q. Will you file that paper as an exhibit, Mr. Hamilton?

1699 A. Yes, sir. I will file it as Exhibit 60.

Q. I wish to call attention to an error in your testimony, which you have just given.

(Previous answer of the witness is here read).

A. That is not a fair statement. It would throw it a little more the other way than what the 10% does.

Q. Mr. Mayer, in his evidence, criticised your plan for dividing expenses on station and yards, stating that your method had overburdened the intrastate because you had applied the state wide ton units to the terminal proportion of station and yard expenses; and the state wide line units, that is the ton miles, to the line proportion of station and yard expenses, in dividing between intrastate and interstate.

Mr. Mayer, as I recall it, stated that you should have made this division on the basis of business received and forwarded from each individual station. He further stated you should not have treated the expense of handling at station traffic interchanged between main line and branch lines as a line expense which you subsequently divided on the state wide line units; that this traffic should have been treated as terminal at junction stations, each junction station being treated separately:

Have you made any investigation as to what the effect upon your results would have been had you followed Mr. Mayer's plan?

1700 A. Yes, sir. I have taken Fayetteville station on our central division as typical point. I think it is a first class illustration. Main line local trains and through trains run through there, the locals having their terminus at Fort Smith to the south and at Rogers to the north, the through trains running through Fayetteville from Fort Smith to Monett, in most instances.

Out of Fayetteville there are two branches leaving the main line,

one the Ozark & Cherokee Central running across through Muskogee and out to Okmulgee on the Red River Division in Oklahoma; the other the St. Paul branch which now runs out to Pettigrew. I thought that was just as typical an illustration of the situation Mr. Mayer discussed as I could find, and Fayetteville is a good sized healthy station.

There was just the condition there in actual operation that Mr. Mr. Mayer used for his illustration.

I have lifted the Fayetteville expenses and operating performance bodily out of our two months' figures. It has been a large task, but I felt the game was worth the candle. I wanted to see for my own satisfaction, if nothing else, how good a guesser Mr. Mayer was of this bu-dening of the intrastate traffic. When I got through I found he was not a very good guesser.

I reconstructed a division of expenses to Fayetteville on Mr. Mayer's plan, for the test period of November and December,
1701 1913, following his suggestions literally. I have segregated first from the state wide pool the station and yard expense actually incurred at Fayetteville during the test period. I have divided the Fayetteville station expenses between line and terminal, freight and passenger, on the basis of the agent's time-study made by the agent at that station, and which was included in our November and December, 1913, test.

I have made a subdivision of the freight expenses as between clerical or office, freight house and yard, and by "yard" there I mean the yard proportion of the station expenses, office and yard clerk, chargeable to freight service, and have made this apportionment on the time study basis.

Right at that point the passenger proposition goes out of the problem of making the freight study that Mr. Mayer suggested. I have added the time study proportion of the yard expenses properly chargeable to freight terminal, to the yard proportion of station expenses chargeable to freight terminal.

I then set up the terminal freight expenses divided between clerical, freight house and yard at Fayetteville alone, taken out of the state wide pool. The clerical freight terminal expense I divided between state and interstate on the basis of the number of consignments handled at Fayetteville station alone. That is what Mr. Mayer said he would have done. The freight house expense chargeable to terminal freight at Fayetteville I divided on the
1702 basis of the number of tons of less-than-carload freight received at and forwarded from Fayetteville station proper. The yard freight terminal expense I divided between state and interstate on the basis of the number of loaded cars received and forwarded from Fayetteville station.

All these units were state wide units in the pool that Mr. Mayer complained of. Now I have localized them.

The freight line proportion of the yard expense at Fayetteville determined upon the time study in that local yard, I divided between state and interstate on the basis of the gross tons of loaded cars picked up or set out at Fayetteville by main line trains pass-

ing through, or brought in or taken out by branch line trains. That is exactly what Mr. Mayer said he would have done, localizing the whole proposition and making the division or application of our units in that way.

You see, we have virtually resolved, or actually resolved, that branch line interchange into the terminal proposition in dividing its line expense burden as he said he would have done.

To contrast the result of this method proposed by Mr. Mayer, and which we have followed literally as we understood him, I extracted from the figures which have gone into the Company's exhibits the detail of the Fayetteville expenses set up on the basis of the formula, and pro rated on state wide line units. That is,

1703 I just took out the Fayetteville expense and set it up by itself, and applied to it the same state wide units as had been applied to it when it was in the pool. Contrasting the results of following Mr. Mayer's suggested method, with the results obtained under the method reflected in our exhibits, I find that of the total station and yard expenses at Fayetteville there was charged in our exhibits $592.66 to intrastate freight and $2205.00 to interstate freight; whereas, following Mr. Mayer's suggested method I got a charge to intrastate freight of $1058.51 and to interstate freight of $1739.35. So that Mr. Mayer's suggested method, had we employed it in compiling our exhibits, would have charged to the intrastate freight at Fayetteville—certainly a representative statement of the condition he discussed—almost 100% more than we really charged to that intrastate freight.

I don't think Mr. Mayer's method is right. I think that the business of the state, intrastate and interstate, separately, must stand or fall alone. We are running that whole railroad in the state, we are not just running Fayetteville or Winslow, or Fort Smith station, and it is all part of the game.

There is the reciprocal service one place and the other—I cannot think of any other illustration than the one Mr. Mayer himself made of Fort Smith and the Harvard yards. They are all necessary to the conduct of the Company's business in the state. We are not running stations, we are running a railroad.

At this point recess was had until 1:45 P. M.

1704 After recess on Saturday, November 14, 1914, the following proceedings were had at 1:45 P. M.:

Cross-examination of Mr. Hamilton.

By Mr. Hill:

Q. Mr. Hamilton, you testified that the item $7397.80 Mr. Simson found would have been the difference if you had set up the expenses by the primary Interstate Commerce Commission's accounts should be transferred to the other side if the Company material had been computed as was done in other instances:

I wish you would explain how that worked up.

A. I went further than that. I made the Company material ad-

justment which relieved freight of its burden of service performed for the passenger, as explained by Exhibit 10; but I did not stop there.

I stated, as the record shows, that I made the equation, after spreading Company material on the basis of freight and passenger division, the Company material spread was purely an incident.

What I took exception to in Mr. Simson's method was, that he had equated the total of the primary accounts and had not made, as I did in the totals, the freight and passenger equations separately.

I could explain how that Company material was spread, if you wish it. It is somewhat lengthy.

Q. It is done as per your exhibit that covers that, is it not?

1705 A. That is the way it was done.

The difference between us was the freight and passenger equation, the relation of that equation to the total amount.

Q. And it worked out by throwing more burden on the passenger, I presume?

A. No, sir. I would have to get the detail on that. I know it assigned about $8,000 more to Arkansas rather than $7300 less.

Q. Have you your working sheets on that?

A. Yes, sir.

Q. You stated "that in exhibits B and D Mr. Simson used other averages which we had first arrived at and which were in error, because we had divided them by the wrong number of units, to a small extent:"

I don't quite catch your meaning. Do you mean you took his 31 cents instead of your 36 cents?

A. No, sir. Mr. Simson's 31 cents as contrasted with our 36 cents; and the same is true of his 5 cents as contrasted with our 8 cents, on the passenger side of this proposition.

Mr. Simson's figures are the proper figures per ton per terminal and per passenger per terminal.

Q. Mr. Simson thought perhaps it was some difference of a small fraction, or something of that kind.

A. No, sir.

Q. You assume the 31 cents is correct instead of 35 cents; and that the 5 cents is correct instead of the eight cents.

1706 A. Yes, sir, per ton per terminal and per passenger per terminal.

Q. As I understand the trend of your argument against these exhibits of Mr. Simson, giving the constructive cost on those bases, it is that the terminal expenses in Arkansas are higher than on the line as a whole?

A. That is apparent, after we work them out, because when you apply them to the entire line terminal units, tons and passengers, you get those constructive expenses that Mr. Simson shows.

Q. Cannot that be accounted for in other ways? If you have not made a proper division between line and terminal—you may think that is a violent assumption.

A. I cannot assume it—if you will pardon me, Judge Hill.

Q. If that were true, that it was a wrong apportionment between

line and terminal, it would work out this proportionate result like Mr. Simson's exhibits show?

A. No, sir. If we put too much in terminal then we must put something back in line, if that should develop to be wrong, as you assume for the purposes of illustration—and then apply a line unit, his constructive cost would come down.

Q. If the line unit was correct and the terminal unit was correct, the result should be the actual operating expenses if you
1707 consider the line as a whole: Isn't that true?

A. No, sir.

Q. Why not?

A. Because that carries the assumption that the line expense in Arkansas is the same as the line expense on the whole line.

Q. I am not speaking about Arkansas. I will reframe my question:

If you made a proper allocation of terminal expense and of line expense on the Frisco Railroad as a whole, then if you would follow the process followed by Mr. Simson in these exhibits, the result should be the actual operating expenses of the Frisco Railroad.

A. Oh, if we had taken the total expenses of the Frisco Railroad and analyzed them as we did in Arkansas, and divided them between line and terminal, if you apply them to the traffic units, of course it is a matter of traveling in a mathematical circle and we would come back to the total expenses of the railroad that we started with.

Q. This disproportionate result that was obtained in Mr. Simson's exhibits is necessarily due to one or two facts: Either the Arkansas terminal expenses are higher than that of the line or else there has not been proper apportionment between line and terminal.

A. You mean in Arkansas?

Q. Yes.

1708 A. Yes, sir, and I agree with your first proposition, that the terminal expenses in Arkansas are higher than they are for the entire railroad.

Q. That was not my proposition.

A. That was the basis of your assumption. You said either that or the other thing—and I agree with the first proposition.

Q. I did not say it was my proposition.

Your proposition is that the terminal expense in Arkansas is higher than the terminal expense on the entire system.

A. Yes, sir, there is not any question about it, when you consider the traffic density and the average haul.

Q. What has the average haul got to do with this proposition, Mr. Hamilton?

A. It has a great deal to do with it. You are talking now about terminal cost, which we set up in our exhibits for Arkansas, as I understood you?

Q. Yes.

A. I think the misunderstanding which has arisen between us is that the state has proceeded on the assumption, largely,—or, at least, has used the figures that way—that that cost was built up by

the use of these same terminal units that they used to divide the cost.

That is absolutely not the fact.

I want to give you an illustration which I think will ex-
1709 plain my position and my views on the matter:

Take one train as an illustration: Take the local freight train service which we assign to terminal on the time basis:

A local freight train stops in Arkansas to unload tonnage or to set out a car. It has, owing to the light traffic density, only one ton or one car, perhaps, to set out at that Arkansas station.

Now, where the traffic density is greater, as in the illustration I gave you yesterday, on our northern division six times Arkansas' density, take some train and in the same time it would set out three tons or three cars, not consuming any more time than this first train I mentioned. And the cost per car set out or the cost per ton unloaded there, for that expense, would be much cheaper than where the train having less work to do and less tonnage to unload at the Arkansas station would unload less tonnage and have the same charge for expense on the time basis.

That is what "traffic density" means in this connection—or, rather, the lack of traffic density.

Q. Mr. Hamilton, I don't want to have any misunderstanding about what are terminal expenses in this matter. I want to read you from page 177 of the record of your direct testimony. You said there:

1710 That is the terminal expense as defined by you in your exhibits worked out from your Exhibit No. 1, is it not?'

A. Yes, sir, most emphatically, yes.

Q. On page 220 you illustrate a shipment from the Fort Smith branch to the main line. We have been discussing that, too. This I will read you follows that discussion.

"Q. Does not all this terminal expense also prepare the shipment to move?

A. No, sir. That is the line of cleavage right there. That is the expense after it comes out of the train, of delivering it to the consignee or getting it from the shipper before you put it into the train.

That is the direct line of cleavage in this whole thing, all the way through.

Q. I see it is. Where you cleave the line on one side you put the number of miles that the freight is hauled as a factor to divide the expense, and on the other side the number of tons handled?

A. Because the functions performed in incurring the expenses are entirely different, one is haulage and the other is non-haulage. In the haulage, necessarily, the element of distance is a factor. In the non-haulage distance cuts no figure."

A. That is correct.

Q. Now, if that is correct, how can it be that the local or short haul has any effect upon the expense account? It may have effect upon the earnings but I am speaking of the expense account. I am speaking of terminal expense, you understand.

A. Without desiring to be flippant, I thought that all this discussion we have had of this formula and the voluminous explanation given in our exhibits, it was understood how we had set up terminal cost.

You speak there, in quoting the testimony you have just
1711 read, of the terminal expense attaching to the tons.

Of course, it attaches to the tons. That is what we incur terminal expense for.

We do not use the tons to split any expense between line and terminal.

We use them to divide the terminal expense after we ascertain it, between state and interstate.

Now, let us see what goes into that terminal expense and then maybe it will be a little clearer.

Here is maintenance of way, track maintenance, to start with. We got the division between line and terminal of that expense in our test period by having the section foreman keep a record of the actual maintenance cost of line track and of terminal tracks separately.

That is also true of buildings, with the exception possibly of station buildings.

There was just as much terminal maintenance expense on a warehouse track at Fayetteville, if you will, and just as much assigned to terminal under this formula, whether ten tons or twenty tons or fifty tons were handled. The expense actually incurred was put against that terminal track.

Now let us move out on the entire railroad to compare it: We come up here to St. Louis and perhaps during the same period a section foreman down at our Seventh Street freight house did just as much work on that warehouse track running alongside of that platform as was done at Fayetteville, but there might have been and
1712 undoubtedly was 1,000 times the number of tons handled over that track, and which should be counted in any division, state and interstate, or as Mr. Simson has divided them, in the handling cost per ton.

Now, take another illustration—before I go to that, though, I might say there is a direct illustration on the maintenance of way side of it in which traffic density makes some difference in the average cost per ton.

Q. I think I can save you some repetition if I read you this testimony and see if it does not cover it.

A. If you please, I would like to continue with my illustration. I don't think the reading of the evidence would make it quite as clear.

Q. All right.

A. Here is a block of yard expenses running from Interstate Commerce Commission Accounts 67 to 78 inclusive.

We kept a switch engine at the Fayetteville yard. It put in a certain portion of its time in what we define here as terminal service and a certain proportion of its time was put in what we call line

service. We split up the switch engine expense and the whole yard expense on the basis of that line and terminal time.

Let us assume that we handled 1,000 cars at Fayetteville. Now, over at Jonesboro, possibly, we had a switch engine also and it put in perhaps as much time, say the same time for the purposes of illustration, to terminal and to line. And it handled half as
1713 many cars in that terminal time.

We had to keep a switch engine at Jonesboro on account of the obligatory nature of the service.

But you cannot compare the terminal unit cost at Fayetteville with that at Jonesboro any more than you can come up here to St. Louis and then go back to Jonesboro and compare the actual terminal expense.

The difference is in the way the terminal cost has been apportioned by us to terminal, which has no regard to the tons handled, and the way it is used here in Exhibits B, C, D and E by the state when they carry it out on the entire railroad.

Q. And it has no relation to the distance hauled, either?

A. Yes, it has a very direct relation, I think.

Q. Suppose a shipment was going from Monett to Fort Smith, about 125 miles, and the terminal cost at both ends would be 31 cents per ton.

A. Yes, sir.

Q. Would that terminal cost of 31 cents per ton at each end have any relation to the miles between Monett and Fort Smith?

A. Yes.

Q. What relation?

A. Not in and of itself. The cost at Monett and the cost at Fort Smith would not be changed, if through some contracting process that line was shrunk from 140 miles to 100 miles.

But that is not the comparison. That is a statement of only one haul.

1714 But you are comparing a haul of 160 miles on the entire railroad with a haul of say 70 miles in Arkansas. I want to put two Arkansas tons up against your one ton that moved from Monett to Fort Smith, just twice the distance.

You start out with a ton from Monett and haul it 70 miles down the line towards Fort Smith and you have had a terminal expense at Monett and one at the first stopping place. You have made 70 ton miles. Then you take up another ton and haul it from this place, wherever it may be, into Fort Smith, and make another 70 miles and have another 70 ton miles.

But you have four terminal costs.

Now, the fact that you handled those four tons, handled a ton four times instead of twice, may or may not have caused more terminal expense. But when you have set up the actual terminal expense or accumulated it on the basis of the time study or the direct allocation, then each ton that moved into or out of the terminal will bear its burden, and that burden, as Mr. Mayer puts it, rolls up and doubles up against the intrastate, which is the short haul traffic; or against the Arkansas business which is the short haul business.

Q. There would be more expense as a total accruing against a given number of tons of intrastate business than there would be of a given number of tons of interstate business: Is that your proposition?

A. There would be a greater expense, and properly so, accruing against a given number of tons of short haul traffic as com-
1715 pared to the same number of tons of long haul traffic.

Q. That would be the total expense?

A. No, sir, properly chargeable terminal expense.

Q. There would be more terminal expense?

A. Yes, sir. I say there would be more properly chargeable terminal expense to the short haul traffic than to the long haul traffic.

Q. Take two shipments: One from Fayetteville to Fort Smith, 62 miles, and one from Monett to Fort Smith, we will say 125 miles: The terminal cost at Fort Smith on the averaging process would be 31 cents for each of those shipments, would it not? And the terminal cost at Fayetteville on one shipment was 31 cents. The terminal cost at Monett (we are not considering the interstate business) would be 31 cents there?

A. I understand.

Q. Would not your terminal cost on those four shipments be the sum of four times 31 cents?

A. No, sir, but our apportionment of terminal cost between the tons, under this formula, would have been the sum of four times 31 cents. But that would have nothing to do with allocating the terminal cost at Fort Smith or Monett or Fayetteville.

Q. But it takes the terminal cost of the state, does it not?

A. I do not follow you.

Q. This 31 cents represents the terminal cost per ton per
1716 terminal in the state, does it not?

A. Yes, sir, that is what it represents.

Q. Now I want to read from your testimony on pages 210 and 211:

"Heretofore in the preparation of figures for submission to the Court, in an attempt to segregate the expense of intrastate and interstate business, the conception that has been had of what was terminal expense has been largely erroneous. Accountants and others, on both the railroad side and the state side in these cases, have been accustomed to consider terminal expense as entirely comprised within the accounts which the Interstate Commerce Commission designates 'Station expense' and 'Yard expense.' This formula (Exhibit No. 1) goes deeper than that. It was found, upon investigation, that there are many functions performed, the expense of which was in the Interstate Commerce 'Station expense' and 'Yard expense' groups, which were not in any sense of the word the expense of receiving and delivering freight from the shipper and to the consignee, which, in the last analysis, is what terminal expense means.

It was found, on the other hand, that there were buried in the haulage expenses items of expense incurred by reason of the func-

tions performed by through trains and local trains in lieu of yard engines, so that we could not accept the old definition that the Interstate Commerce classification of 'Station Expenses' and 'Yard expenses,' as they grouped it, was all terminal expense; or, that the groups of 'train and engine service' set up by the Interstate Commerce Commission were all haulage expenses. We found that in the yards and at the stations the yard and station organization performed a service which was incident to preparing trains to run over the line, or caring for them after they had run over the line, insofar as they contained freight—I am taking the freight side as an illustration—which came from beyond or was going beyond that station where the train stopped, and being merely an incident in the journey of the freight.

We found, on the other hand, that at stations out on the line of road the local freight train stopped and switched cars, placed
1717 them at the warehouse, placed them for loading or unloading and performed the functions which a switch engine would have performed had there been enough business at that local station to justify keeping one there. So that that was a terminal service at that station, connected with the receiving and delivering of freight, which was performed by a train, and that expense of the train had been charged, ordinarily, and heretofore, to the haulage service.

It thus became necessary to analyze what yard organizations and train service organizations did. We made a study of that, and it has been detailed here in Exhibit No. 2, and Exhibits 2-A to 2-K.

We made a study of the time which the yard engines devoted to what we consider line service. That is explained in connection with Exhibit No. 2-I.

We made a study of what the through trains and local trains did out on the line, which was properly terminal service. That is explained in connection with Exhibit 2-H.

Following that, and taking up this paragraph on page 3 of the formula, which is headed 'Maintenance of Line,' meaning in that sense maintenance of tracks and structures which are properly chargeable to line or haulage service—in some instances not whole structures, but portions of them.

The formula reads:

'Maintenance of main and passing tracks, tracks at division or train terminals used exclusively, or nearly exclusively, in making up and breaking up trains at points where trains are started and terminated, in reclassifying and storing through cars and through trains and passing them through yards.'

That, so far as the freight service is concerned, is what we consider maintenance of way expense chargeable to the line or haulage service."

You have attempted in building up your terminal expense, following your line expense, to follow what you claimed here
1718 in your testimony, have you not?

A. Yes, sir.

Q. You contend that density of traffic affects this terminal expense?

A. Yes, sir.

Q. In what way?

A. I will have to go back to my illustration of the local freight train—or, to let me start with the station first, as that is where the business originates or terminates.

We have got a one man station—we call them—that is, where we keep one employe and he handles say ten tons of freight and the next month he handles 50 tons of freight.

We would have the same salary and expense at that station for him—and I am speaking now of his terminal proportion, disregarding his line duties.

His cost when he handles 50 tons is one-fifth as much per ton as when he handles 10 tons, but the expense would be there at that station just the same.

There is one illustration of how density of traffic would decrease or increase cost as it went up or down.

Now, take the train service: Your local freight train stops at a station to unload freight and if there is heavy density of traffic for that station they can take 3 tons possibly out of 3 cars, or out of one car, without much more delay for that purpose at the station than if he stopped and loaded or unloaded just one ton.

1719 So with the cost of stopping that train for the purpose of loading or unloading the freight, which we have apportioned on a time basis, we get less per ton at the heavy traffic station than at the light traffic stations.

To go further, once more to my illustration of maintenance:

A warehouse track at say Fayetteville, the terminal expense was the actual money spent on that track during the test period. It was set aside as terminal track. The warehouse building, its maintenance, was definitely set aside and charged to terminal. So if at Fayetteville we had handled 1,000 tons and we had at say Monett a similar freight house and a similar maintenance cost, and handled 2,000 tons at Monett for that the expense per ton would have been half what it was at Fayetteville.

Inasmuch as the tons and passengers are in no way a factor in setting aside the terminal expense, you have two separate and distinct proposition-, and when you assume you can take the average cost per ton per terminal obtained in Arkansas, under these light traffic density conditions I have described, and take it out upon the whole railroad, where the traffic density is much greater and a given expense would cover a greater given number of tons, it seems to me there is nothing more I can say in explanation of it.

Q. In your testimony on page 1690, look at your figures there: That was for 1913?

A. Yes, sir, that is my recollection of it.

1720 Q. And it compared the whole line you were comparing there with the lines north of the Red River?

A. That is my recollection of it.

Q. Wouldn't it be more correct on this terminal cost proposition,

inasmuch as the traffic is handled in Texas and allowance made for revenue and terminal cost against that, to use your stockholders' report on comparisons of density of traffic that you use on the lines north?

A. No, sir, I do not think so, because our exhibits on that have no comparison of expenses to the lines south of the Red River any more than you can go out and bring in the figures of the Missouri Pacific Railroad and use them for comparison.

Q. The density on the lines north of the Red River is greater than on the lines south of there, is it not?

A. That is our entire line.

Q. Your stockholders don't seem to think so, according to this report.

A. I don't know of, nor have I any connection with, nor has my superior, or the road by which I am employed, with the management of those roads.

That our Company has some stock interest in them I do know, but they are not parties to this suit.

Q. It has been discovered here that their statistics seem to be a combination of the two railroads.

A. I cannot answer to what our auditor reports to the stockholders. He certainly does not take their figures up on his

1721 books.

Q. It is a fact that that is the way he makes his report, isn't it?

A. Oh, yes. I think that would be good fiscal information for them to have, the people who own our stock and through that medium have control of those roads would want to know something about them.

So far as the stockholders' report is concerned it is considered as one railroad?

A. I don't know about that. If you want to get accurate information on that subject you will have to get it from Mr. Douglas. He makes that up.

Q. I want to read you from page 178 of your testimony:

"Q. You have taken road mileage pro rate to get your interstate?

A. No, sir. We have made a terminal allowance at both ends.

Q. You get your figure to start with on road mileage?

A. Yes, sir, the only way you can pro rate interstate business.

Q. And then you equate it to cover what you considered the terminal cost?

A. And add an allowance of mileage to cover the terminal cost. The only way interstate revenue can be pro-rated between states is on a mileage basis. Surely, there is no ground for the assumption that a road earns any more on any one given mile of road haul than on another given mile of road haul.

Q. Does not the density of traffic affect that?

A. No, sir, that would affect operating expenses.

Q. Doesn't it affect earnings?

A. In a way, yes.

1722 Q. In a very material way, wouldn't it?

A. No, sir. It would if we followed Mr. Douglas' method—not the one we have used in our 1913 figures.

Q. It would affect it very materially. Taking the basic figures as he took them wouldn't it?

A. No, sir. I think the results we have got here prove that his method as to its results was very close to ours.

Q. The density of traffic on the Frisco system—there is a very much greater density in Missouri and Kansas?

A. Missouri, Kansas and Alabama, but the greatest in Kansas between the Fort Scott and Kansas City.

Q. And there is a greater density of traffic in Arkansas than in Oklahoma?

A. On some lines, yes, and on some, no.

Q. The mileage in Oklahoma is 1,500?

A. Yes, sir,

Q. And it is less than 600 in Arkansas?

A. 597 and a fraction."

It seems you did not regard the density of traffic as affecting this proposition, as I understand your testimony there: Isn't that correct?

A. What proposition?

Q. The proposition you were asked about here—the allowance of mileage to cover terminal cost.

A. That is a revenue pro rate.

Q. I asked you "Does not the density of traffic affect that?" And you said, "No, that would affect operating expenses."

"Q. Doesn't it affect earnings?

A. In a way, yes.

1723 Q. In a very material way, wouldn't it?

A. No, sir."

Isn't that correct?

A. Most assuredly the density of traffic affects earnings. If you haul more traffic over a railroad you have more earnings per mile of line.

But what that has to do with a mileage pro rate of individual items of revenue between stations in one state and stations in another state, I cannot conceive.

Q. You do not think the density of traffic affects that proposition, then?

A. I cannot answer in any such general terms as that.

I think that answer there is responsive.

Density of traffic, if it be greater upon a given mile of railroad and rate conditions are the same, will produce more revenue per mile of railroad than light traffic density will produce. That is your proposition.

Q. Your terminal expenses are more per ton on account of having thrown the less-than-carload ton into the whole line, than if you had separated them and taken your expense per ton mileage of expense on less-than-carload separately, is it not?

A. I would have to analyze and consider what percentage of expense would attach directly to each.

We did not do that, you understand, Judge Hill, in the state and interstate pro rate.

Q. But you did on the expense side?

1724 A. No, sir, not in the division between line and terminal.

Q. I am taking your total terminal expense.

A. You mean for this revenue equivalent?

Q. Yes.

A. Oh, yes, we did that. But only for pro-rating the interstate revenue. It has no relation to the assignment of expense as between line and terminal.

Q. I understand. But you used it in that connection in getting your division between line and terminal—your division of revenue?

A. Yes, sir, that is very true.

Q. Mr. Nay was testifying in regard to the relation of one period to the other, on pages 870 and 871 of the record, and he said in answer to this question:

"Q. Where the intrastate haul is the same in two periods and the interstate haul is shorter in one of those periods than the other, what would be the effect of the expense per ton mile in the two classes of traffic?

A. Other conditions being equal or similar, my judgment is that in the period where the interstate haul was shorter a greater proportion of the expense would be assigned to interstate than in the period where the interstate haul was longer."

Is that the same proposition you have been referring to as the heavier expense of short haul traffic?

A. Yes and no.

I agree absolutely, without qualification, with Mr. Nay's statement, that on a given terminal expense as your haul shortens your expense per ton mile increases. That is axiomatic. But

1725 that you would have the same terminal expense I do not agree, under our formula here, at least—and by "terminal cost" there I mean terminal cost in the aggregate.

Q. As defined in your formula?

A. Yes, sir.

Q. That is what Mr. Nay was referring to, is it not?

A. Yes, sir, absolutely.

Q. In your testimony you are contrasting an interstate haul in Arkansas, which you gave as 75 miles, as against an intrastate haul of 25 miles, I think it was.

A. I don't know that I made any comparison except to say the average hauls were about that. I think it was 75 and 25 miles in Arkansas, and then to quote the average haul on the entire business of the state.

Q. The difference in the average length of haul in freight and passenger in Arkansas, compared to the entire line—we will take the fiscal year 1912 as an illustration—freight in Arkansas 75 and 25; entire line 166.21 miles; passenger 21.60, entire line 43.65—that figure for freight in Arkansas, 75 and 25, means all freight, intrastate, interstate and trans-state——

A. Yes, that is correct.

Q. The figures that you have in some of your exhibits of the interstate haul in Arkansas are about 81 miles, I believe?

A. It runs down as low as 76.

1726 Q. Somewhere along there. Say from 76 to 81?

A. That is about it, yes, sir.

Q. That is excluding the intrastate and taking all classes of interstate, including trans-state?

A. Yes, we make no distinction of trans-state business. We charge it just as if it were interstate.

Q. The longest haul that any interstate or trans-state business can get in Arkansas is about 130 miles, is it not?

A. Just about that, yes, sir.

Q. That is on the Memphis line?

A. Yes, sir.

Q. Much of it can get the maximum haul on the Central Division of 109 miles, I believe it is?

A. I will have to check those figures.

Q. I think that is correct. (To Mr. Press:) Is it not, Mr. Press?

Mr. Press: 109, yes, according to the state line of Oklahoma; about 140 miles on the Memphis line.

Q. How much of this haul which is represented in those figures as an average of 76 to 81 represents the segment of a long haul?

A. You say so. I don't remember. Some does, yes.

Q. All your trans-state does, does it not?

A. Oh, no. It does represent some, yes.

Q. I think in the Iron Mountain case your testimony was that the trans-state represented about 51%. I don't know what it represents in this case.

1727 A. There is not any such thing, Judge Hill, as trans-state freight in the sense that we were talking about it in the Iron Mountain case. It all gets a terminal handling, there is no question about that.

Q. I am not talking about the terminals, but what we know as trans-state freight: That is, through some portion of the state it is very well understood and you understand what it means.

A. Let me see if I follow you: You say in the Iron Mountain case it was testified, and I think your recollection is about right, that the trans-state ton mileage was about 51% of the state.

Q. The net tons were probably something less.

A. Yes. Do I understand you want to contrast that with the Frisco in Arkansas?

Q. I want to get approximately what the relation of the trans-state to the whole traffic is in the state.

A. No, we never have had it as to trans-state business. I can say this, though, that it would certainly be much less than the 50% expressed in ton miles. We have some trans-state hauls in Arkansas that are very short, and perhaps in that connection you are thinking of trans-state freight which moves trans-state upon our own rails.

Q. I mean all your trans-state.

A. I just wanted to illustrate, if I mat, a shipment from Hugo, some point in Texas, over in east Texas, to come across to

1728 Hope, or upon the Mountain through Texarkana. There is a very short haul in Arkansas, but still it would be trans-state.

Q. It would be very little?

A. Oh, no. All of the business that moves from St. Louis to Memphis is trans-state in Arkansas. It just cuts a little bit of the corner of the state over there. It goes to Turrell and straight to the river.

Q. Whether it is 50% or 1% it is not a negligible quantity at all?

A. Oh, no, there is quite some of it there. There is no question about that. I did not want to estimate because I really don't know.

Q. The average haul of your entire line north of the Red River is 166 miles: A material part of that long haul, or average long haul, would be represented in the segments of the haul which enter into the Arkansas figures of 76 or 81, would it not?

A. No, that is rather specious. I don't agree with you about that.

Q. I am not talking about being specious. I am talking about the facts.

A. I said no, I don't think so, because Arkansas has such a small proportion of the total traffic of the railroad, only 12% of the mileage, a thinner density of traffic, and it certainly could not
1729 be a large proportion of the long haul business.

Q. I did not say a large proportion of the entire long haul business. At least, I did not intend that. I mean just the other way: Of this 80 mile haul that is in Arkansas a material part of that is long haul traffic?

A. Undoubtedly. There is quite a little of it; how much, I don't know.

Q. What would be represented as an eighty mile haul in Arkansas is really part, in many instances, of the longer haul, is it not?

A. That is true. It is also true of the interstate in and out of Arkansas.

Q. Yes, it may be true of that, but it represents a segment?

A. Oh, yes.

Q. It is probably even more pronounced than in this trans-state business, is it not?

A. Yes, I think that is true.

Q. The Memphis traffic and the Fort Smith traffic; traffic from Springfield down into Arkansas, all would be very much longer haul than what is represented by the segment which would get into the Arkansas statistics?

A. Undoubtedly. There are no great jobbing centers around the edges of Arkansas except on the Memphis side. The stuff would have to move some distance.

Q. Have you the statistics of the revenue per ton per mile
1730 intrastate? I would like to have it on 1907. I would rather have it for all these periods, if you have it?

A. They are deducible from the exhibits; all of our exhibits will give it.

Q. Mr. Simson has made a calculation there. (To Mr. Simson:) That is the four months' period, is it not?

Mr. Simson: That is the four months of 1907.

Q. Look over that, Mr. Hamilton.

Mr. Simson: I think it is Exhibit 27-A.

The Witness They all have all the factors, every one of them. (After examining:) Yes.

Q. What does that show the Arkansas intrastate revenue per ton per mile is?

A. 2.479 cents. That is, to put it in the usually expressed phraseology, 24.79 mills.

Q. Have you the calculation on the Arkansas interstate?

A. Yes; made from the same exhibit, 27-A. The factors are in the exhibit, not the result. It is 7.76 mills.

Q. And the whole Arkansas business combined?

A. Would be 8.38 mills.

Q. I think it is Exhibit D which gives you a rate per ton per mile for the entire line——

A. 9.52, as I recall it. Yes. That is correct. I remember that.

Q. These rates per ton per mile are all on the four months' period of 1907, are they not?

1731 A. Those that I have quoted, yes. (To Mr. Simson:) That also applies to the 9.52, does it not, Mr. Simson?

Mr. Simson: Yes.

Q. During that period the two cent fare, the two cent passenger rate, was in effect in Arkansas, was it not?

A. Yes, sir.

Q. It was also in effect in Oklahoma, was it not?

A. I really cannot answer.

Q. I am not quite certain about it. I think it went into effect the first of November.

A. 1907. I think it was along in 1910.

Q. It was in effect when they adopted their constitution out there. (To Mr. Press:) Mr. Press, do you know when the two cent rate went into effect in Oklahoma?

Mr. Press: No, I don't know exactly; back in 1908, sometime, I think.

Q. I think it was the fall of 1907, but I don't know accurately.

Mr. Press: I don't remember.

Q. When did it go into effect in Missouri?

The Witness: 1913.

Q. It went into effect once before?

A. It did not stay there long.

Mr. Press: I think it was June 29, 1907.

Q. It was in effect during this four months' period?

A. I believe——

1732 Q. They had a lot of litigation in Alabama, 2¼ cents or 2 cents first.

A. You are getting out side of my information on that.

Mr. Hill: Do you know about that, Mr. Press.

Mr. Press: I think it was 3 and then down to 2½. I think they compromised.

Mr. Hill: I think the compromise was 2½ or originally it was 2 or

2¼, but during this period there was in effect in Alabama that lower rate, whatever it was, I think. Is not that correct?

Mr. Press: I don't think so, so far as the Frisco is concerned, that they ever put in that rate. If I remember correctly.

Mr. Hamilton: I don't know as to the dates. I think you are correct about Missouri, but as to the others I don't know. It is a matter of looking up on my part.

Q. You don't know about Kansas?
A. It is on a two cent basis.
Q. How long on a two cent basis?
A. That I can't answer; I don't know.
Q. Was it not on prior to 1907, the four months?
A. I cannot say.
Q. (To Mr. Press:) Do you know, Mr. Press?
Mr. Press: Sometime in 1907, I think.
Q. My recollection is it was the same time as Missouri.

Mr. Press: That is my opinion, yes.

1733 Q. Tennessee and Mississippi are the only other states you go into?

The Witness: That is right, yes, sir.

Q. Have you the figures on your passenger revenue per passenger mile during 1907? If you have not, Mr. Simson——

A. 20.07 mills. That is 2 cents and a small fraction. On interstate business, 18.9 mills, and on all passenger business 19.4 mills.

Q. Mr. Hamilton, at Fayetteville, which you took to illustrate some phase of Mr. Mayer's testimony, you made up these figures which you gave us on the basis of taking all tons handled there on the branch lines as terminal expense instead of line expense, if I understood you correctly: Is that correct?

A. No, not exactly. What we did was to take the line expense occurring at Fayetteville station. That would be the line service of the yard engine and whatever charge there may have been on the time-study from station to line, which would have been slight, and we divided that on the basis of the number of gross tons brought in by branch lines trains or taken out by them, gross tons of loaded cars, and the number of gross tons of loaded cars taken from Fayetteville, or left there by main line trains moving through there. That was the division between state and interstate on gross tons of loaded cars.

So what we have done, for the purposes of that illustration,

1734 was to accept Mr. Mayer's suggestion and translate that line expense into terminal expense.

Q. That is as I understood it: You treated this branch line as terminal in your illustration?

A. We translated the line expense into terminal and divided it on those terminal units.

Q. Is not that the only station in Arkansas where you have two branch lines running into it?

A. That is right, yes, sir.
Q. There is considerable traffic on those, too?
A. That is why I picked it, to get a representative proposition.

Candidly, that was exactly what I had in mind. I thought I would take one where there would not be an objection of having such slight traffic there——

Q. Relatively, there is more branch line traffic at Fayetteville than any other station in Arkansas?

A. That would be true with the possible exception of Fort Smith, that heavy tonnage over the Mansfield branch.

Q. That could not bear the relation to the total tonnage passing through there on the main line that the branch lines there would bear to the tonnage handled at Fayetteville, would it?

A. I don't know. I would have to see the Fort Smith figures before I could answer that, but frankly, Judge Hill, I picked Fayetteville because it was a big station and would, perhaps, most thoroughly reflect the condition.

1735 Q. In this example that you made of Exhibit 59—I think it was 59—on the weather stress.

A. No. 60.

Q. You have shown in that, and as I understood your testimony, that the gross engine ton mile and the train mile are approximately close together?

A. No, it would not show that. It shows that a straight engine ton mile division is not very far from a split, first, of the expense between wear and weather stress, 10 and 90, respectively; then a division of the wear on the gross ton mile, which include- the engine, and then the weather stress proportion, as Mr. Mayer denominated it, on the revenue train miles.

Q. That would be dividing 90, using 90 as representing the elemental injury?

A. Yes, sir.

Q. On the train mile basis?

A. That is correct.

Q. You would not advocate that as a sound basis, would you?

A. No, sir, I don't advocate it at all.

Q. That puts the passenger train as against all sorts of freight trains as a unit, does it not?

A. Of course, that is true, but for the purposes of the illustration that is intended in this exhibit, that is supposed to divide the portion of the track which Mr. Mayer said was not
1736 affected by the trains that run over it. So it don't make much difference.

Q. In getting the unit representing the use of the track, which I understand you gentlemen are trying to do, would you take a freight train representing forty cars representing that use as against a passenger train of five cars?

A. No, sir.

Q. You would not advocate that?

A. No, sir; I would do as we have done here, to consider the factor of speed in connection with it, because that is also the use of the track, and the service which is rendered, respectively, to the freight and passenger traffic is the weight that is hauled over it to accommodate those services at the varying speeds at which it is

hauled. That is true regardless of what causes the expense of upkeep of the track and its appurtenances.

Q. I suppose you remember the testimony of some very eminent operating men like Mr. Gray and Mr. Wall, and probably others, in the Iron Mountain case, that the train mile was probably the most unreliable factor which could be used?

A. Yes, and I agree with you very heartily.

Q. I was going to ask you if you do not agree that would make an unreliable factor to divide maintenance of way between freight and passenger?

A. I agree with you very heartily. Of course, I want to say that I, perhaps, did not make myself clear in introducing this
1737 exhibit. Absolutely, I do not subscribe to the basis. That is simply an illustration of what the basis set forth in a discussional way in the pamphlet which Mr. Mayer introduced would bring out. My faith is pinned to the engine ton mile, up on top.

Q. Sink or swim, live or die, it is engine ton mile?

A. Just as much as Mr. Mayer is against it, but I believe I can give one or two cogent reasons for it.

Q. I don't know whether or not I understood you correctly this morning when you said there was a direct proportion of the earnings and expenses under the new formula for the four months ended December 31, 1907: Is that correct?

A. No, sir, I did not mean to say that.

Q. I did not suppose you meant to say it, but that is the way I understood your statement at the time. I would be glad for you to explain what you meant.

A. I said the result we got under our equating method—I was talking of maintenance of way expense—was practically the same, or exactly the same, as making the direct apportionment back there.

I don't think that perhaps I gave you all of the factors I had in mind. I did not mean to omit anything, but there is another element that I might have quoted to throw a little light on it.

Since we were last here I dug up, with much labor, dispatcher's sheets for the Arkansas territory for 1907. They told me many times that they did not have them, but I persisted until I
1738 found them stored at Memphis, or rather, most of them. I worked up the engine ton miles for those four months just as we have done it here. We assigned back yonder to maintenance of way, as I said this morning, under the new formula, 58.44% of maintenance of way expenses to freight.

The engine ton miles, as we worked them out actually for those four months—the same as we have done for the 1913 test period, are 60% of freight, within 2% of our assignment here. There we have assigned just a little more. So the equating was not at all a bad proposition when you get down to the concrete effect of it.

I meant to make mention of those engine ton miles this morning but it got away from me.

I also have the data, and the train sheets themselves are available here in St. Louis now, if it is desired to see them.

Q. Your Exhibit 57 is a graphic chart: This represents your ratio of operating expenses to revenue, does it not?

A. For the entire railroad, yes, sir.

Q. That takes two factors, the revenue and the expenses. That reflects the relation that either fluctuates, each ratio, does it not?

A. Exactly.

Q. The average you set up in this, in competition with, I might call it, was probably an average of the last four months of
1739 the five calendar years for the remainder of those fiscal years, was it not?

A. That is my recollection except for one exhibit where six years got into it. That only applies to the entire line proportion of the exhibits you refer to, H-1 to P-1, and so on.

Q. There is no relation between percentages of the particular four months to the balance of that year, to an average of the percentages of the operating ratio, is there?

A. No, but if you take the total figures in those exhibits upon which the average percents were obtained, take the five years' earnings from which the average percents were derived and the five years' expenses from which the average percents were derived, and you will get that ratio there. It is all the same whether you build up an average using earnings and an average using expenses, and apply the ratio, or whether you take the gross before you average it, because the factors are the same.

Q. But in this particular instance it was building up the relation of the particular four months of each five years for the balance of that year, was it not?

A. The particular four months of each of the five years?

Q. Yes.

A. No, sir, it was to establish the average of five four months' periods to five whole year periods, and in one case six to six.

Q. It was taking the last months of each of those calen-
1740 dar years and obtaining their relation to the whole fiscal year, was it not?

A. In total for the five years?

Q. Yes. Is not that an entirely different proposition from averaging an operating ratio over a series of years?

A. If you will take the figures from which those percentages were derived, the five year totals, and the five year total expenses, they are a foundation, absolutely, for what follows them in those exhibits, and they produce the operating ratio that you see indicated by that red line on that chart.

Q. The lower operating ratio shown at the bottom of this exhibit may be due to causes, or to either one of those causes, that is, the increase of revenue and decrease of expenses, or both?

A. That is absolutely correct.

Q. The high ratio shown at the top of the page may be due to either of those causes, or both light revenue and high expenses, or one or the other?

A. Yes, or both, and it also applies to any intervening period that you have there.

Q. In referring to averages in the amended exhibits of Mr. Sim-

son, the results remaining practically the same after the averaging, you called attention to a fact that the sum of $9,000,000 represented the excess: That was the sum of the excess in five years, was it not?

1741 A. One of the factors on which he based his percents scattered through the five blocks of expense. In one exhibit it was $11,000,000.

Q. The point I am getting at is this: Your testimony reads as if you intended it for one year: I don't think that was correct. That $9,000,000 represented the aggregate of the five years, did it not?

A. It was the figure of difference between the old exhibit and the one which supplemented it in the operating expenses, upon which the percentages were based.

Q. That was the five year figures on the one year figures?

A. That is correct, but it is the difference in the factor upon which the percentage is based, whether you put one year's expenses or five added together.

Q. Mr. Hamilton, here is part of your testimony that I don't understand. It is page 1686.

A. Yes, I have it.

Q. You take yard service there at Fayette—I suppose you mean Fayetteville?

A. It should be Fayetteville, yes. Fayetteville and Fayette Junction are within a stone's throw of one another and are operated as one yard.

Q. You say,

"If I take that 14½ cents and multiply those 14093 cars by it, the cars actually handled and this is the actual cost at Fay-

1742 ette, I will get a good deal less money than we actually spent for our yard service that month; because that actual cost is an average of 23.2 cents as against 14.5 cents per car:"

A. That don't mean anything, Judge Hill.

Q. I don't understand it. I think I know what idea you intended to convey, but I cannot understand it as it is stated here.

A. It is not correctly stated because that figure of 14093 cars does not appear in the exhibit, nor is there any such figure here.

What I meant to say in that connection was just this:

This Exhibit No. 56, which is our regular yard cost statement showing the cost per car handled for September, 1914, shows that a cost in the Fayetteville yard of 14½ cents per car for the actual cars handled and actual expense incurred in that yard.

The total cars handled upon the system on the entire line was 593,329, as shown by the very first figure on the exhibit.

Q. You are just citing one in comparison——

A. If you multiply that by 14½ cents at Fayetteville you would not have as much expense as $137,664. That is what we actually did incur upon the railroad. That is the converse of the other proposition.

Q. It is the proposition that you made about Jonesboro?

1743 A. Except where we applied the Jonesboro cost we get a great deal more expense than on the entire railroad, although that is the Jonesboro cost.

Q. That is figured on an entirely different basis than what you figure terminal cost, is it not?

A. Absolutely. But the point I had in mind is that those figures are not comparable to any in our exhibits.

Q. That was really the point I intended to bring out, that it was not comparable.

A. They are not comparable, any of those, but for the illustration I made it was absolutely comparable with the exhibits B, C, D and E.

Q. Take page 1691, in the middle of the page in the discussion of Exhibits B, C, D and E, you say:

"In the first period his application shows that on the entire line the terminal percent to total freight expense is 48.27 while in Arkansas it was 38.71.

That is, his built-up figure is 48.27.

Also the terminal burden per ton mile on the long haul of the entire freight traffic, more than twice what the haul was in Arkansas, was 4.34 mills. While in Arkansas the burden on short haul traffic is only 2.94 mills."

I don't understand that and I wish you would explain it.

A. Yes, I will have to figure it out from the exhibit. If you will be patient, I will pick it out.

Q. I do not care so much for the figures if you will explain what is meant. I suppose these figures are correct, I am not questioning those, but I am trying to get the idea.

1744 A. The thought I had was that after making this constructive assignment to terminal and to line applying the Arkansas unit costs, let us say in Exhibit E—I don't know that that will check with the figures—to the units on the entire line, and on the freight side the terminal expenses so built up are 48% and a fraction, as the record states there, of the total freight expenses so built up, whereas the relation in Arkansas—and I assume it is for the test period—for purposes of illustration, was 38%, or the figure that is shown here, of the total freight expense. That is what the record says. I would have to make——

Q. I get your idea there: As worked up and applied by you the terminal costs are 38.71% of the whole: Is that correct?

A. That is what that figure says, Judge. I think I can check that back in a moment.

Q. I am not trying to check your figures, but to get the principle.

A. Yes, but it is the relative proportion of the two figures——

Q. And in the constructed figures you say the terminal is 48.27: That is what you mean by the total freight expense?

A. I am not certain that those figures are correctly stated there. It will take about a minute to determine the Arkansas end of it to see whether they are reversed. My sense of proportion tells me it ought to be. I may have quoted it wrong.

1745 Q. I can see how they would naturally change, but it looks to me as if it would change the other way.

A. (After figuring.) Those two figures in the record are apparently just exactly reversed, Judge Hill. The statement should have

been that the 48% figure was the Arkansas and the 38% was the whole line. It is just backwards.

Q. The proportion would naturally change, taking the entire line as a longer haul, and it would throw more of the expense into line——

A. In proportion to the total.

Q. In proportion to the total?

A. That is correct. The figures are stated backwards.

Q. Is your calculation correct based on that? I have not followed that.

A. Well, I did not use that to make a calculation with.

Q. You see following right there——

A. Yes, the calculation of the 4.34 mills versus 2.94 mills is reversed. I expect I was reading them so fast that I stated them in reverse order. That is in consonance with the other statement made.

Q. That is what I supposed. You have built up some Oklahoma division between line and terminal on this same formula, with some slight modification, have you not?

A. We are building up such a division.

Q. What is your terminal cost there?

A. That is a question I cannot answer for something like ten days. I wish I could.

1746 Q. You have built it up, have you not?

A. No, sir, not yet. I have not seen the final Oklahoma figures yet.

Q. I understood it ran out a mileage of 85 miles.

A. That is beyond me.

Judge Hill (to Mr. Press): Do you know?

Mr. Press: That was some tentative figure I had made. It was not our final figure.

Q. You have not finished the final figures yet. I thought you had served a copy.

A. No, sir. We have made some tests, and we have changed our mileage equivalent basis, thanks to Mr. Simson's illustration of the ton per terminal proposition figures for Oklahoma, and I don't know what the figure will be.

Q. The terminal expenses are more there than they are in——

A. Now you are taking me into a field where I cannot answer. To be perfectly frank, I have not looked at one of our Oklahoma figures.

Q. I thought you had already served them?

A. No, I am just in shape where Mr. Kleinschmidt is writing or wiring——

Q. I thought you told me you had served some of these and then took them back.

A. That is a mistake, because none of them have been typed or the final figures been recapitulated.

1747 Q. You don't know whether they will be more or less than Arkansas?

A. It will be conjecture.

Mr. Hill (to Mr. Press): Do you know?

Mr. Press: No, I don't know, Mr. Hill.

Q. I got the information somewhere that there was a mileage of 85 as against 78.

Mr. Press: I think that 85 was some tentative figure I made; it was not based on the final computation, however.

Mr. Hamilton: We made some figures and then abandoned them, because we wanted to get a better basis for them such as used in this case, and they have not been worked up yet.

Q. You have testified as to the density of traffic in Arkansas and on the entire line for 1913, I believe?

A. The last fiscal year; took it just as an illustration.

Q. That was 633,000 per mile of road for line and 545,000, in round figures——

A. On the freight side and 97,000 as against 75,000 on the passenger side. Those are the figures.

Q. I want to show you your report to the Oklahoma Commission. You can just look here and see it for the whole year. It shows the density of traffic there as 421,926. That is freight.

A. Those are our Oklahoma state statistics. Is that for
1748 the same year—no, that is 1914.

Q. It is the only one I have.

A. 1914.

Q. Do you know how 1914 compares with 1913?

A. I don't know, Judge Hill.

Q. (To Mr. Press:) Do you know?

Mr. Press: I don't know, Judge Hill.

Q. If you can give me the Oklahoma figures for 1913——

A. What reports have you there?

Q. I thought I had 1913 here.

Mr. Press: I can get that at the office.

Q. For 1914 I will put in the figures 421,926 on the freight side; passenger, 95,269.

Here is your report to the Arkansas Commission for the year ended June 30, 1908: It shows the number of tons carried one mile per mile of road 500,964.

A. That is for the entire line.

Q. For the entire line?

A. Yes, sir.

Q. You have not made a separation in Arkansas for that year?

A. I believe I can get you that figure, Judge Hill.

Q. We have the figures for the four months.

A. That is what I meant. I cannot give you the figures for the whole period. We have no figures for that separate fiscal year anywhere in existence.

Q. We have it for the four months. (To Mr. Simson.)
1749 Just hand those over to Mr. Hamilton, Mr. Simson. The passenger is 84,253. That is the entire line found in the report to the Arkansas Railroad Commission?

A. That is the entire line north of the Red River. What is your question?

Q. I want the density of traffic on the entire line for the four months and the density of traffic in Arkansas for the four months of 1907.

A. I find that the ton miles per mile of road in Arkansas for the four months ended December 31, 1907, was 171,479.

On the entire line, in those same four months, I find that the density was 191,945, in ton miles per mile of line for the four months.

Q. The density of traffic in Arkansas for that four months was within 10 or 11 per cent of the density on the entire line, was it not?

A. Yes, that is correct.

Q. Now take the passenger side of it.

A. The passenger miles per mile of line for that four months of 1907 on the Frisco line north of the Red River were 29,332.

For the state of Arkansas, the passenger miles for that same period were 23,797.

Q. Give the per cent?

A. The Arkansas figure was 81% of the entire line figure,
1750 in round numbers.

Q. On the passenger side of it the Arkansas density of traffic for those four months was 19% less than on the entire line?

A. That is true.

Q. The statistics that you put in in regard to 1913 showed that the Arkansas density of traffic for that year was between 18 to 20 per cent less, and in passenger about 30% less: That is the way I remember your testimony. I did not make the calculation.

A. Well, the figures are 663,000 versus 545,000 on the freight side, and 97,000 versus 75,000 on the passenger side.

Q. I think I quoted your statement correctly.

A. I don't recall it.

Q. You say 19 to 20 per cent. This is at page 1690.

A. That is on the freight.

Q. And 30% on the passenger?

A. That is about right, yes, sir.

Q. You say in the four months' period the relation was much closer than it was in 1913?

A. That is true; still there is quite a disparity because the 11% difference is quite a factor in the traffic density.

There is a statement I would like to make in connection
1751 with that: There are some portions of the entire line where the traffic density is enormous, and that mileage is very great in extent, as compared to Arkansas, too. That has its very potent effect. Really, the entire line average is not as reflective as it should be when compared with Arkansas under those conditions. I have in mind the thinning out of entire line costs, when I say that.

Redirect examination.

By Mr. Moore:

Q. Mr. Hamilton, what Mr. Simson has done is to reconstruct

the conditions surrounding the actual freight and passenger traffic in Arkansas upon the traffic of the entire line, and the result would vary according to the variation of conditions between Arkansas and the entire line, would it not?

A. The operating conditions, yes, sir.

Q. The Arkansas conditions are incorporated in the unit cost used by Mr. Simson in his demonstration, are they not?

A. They are incorporated in this way: The unit cost which Mr. Simson arrived at by dividing the units, the ton handlings and the passenger handlings, into the accumulated terminal cost in our exhibits, and that accumulated terminal cost is the result of setting up such costs without at all having direct regard to the ton and passenger factors upon which they are divided by Mr. Simson. By using the time-study, the assignment of locomotive and car repairs—and by "time-study" I refer to train station and yard—and related items, those costs are built up.

1752 An agent might put in 50% of his time, for instance, to terminal freight service, and we would so assign him in our terminal cost accumulation, that is, his expenses, but he may handle one ton and one ton only for a given expense arrived at on that basis; and the agent at the next station, devoting practically the same amount of his time to freight service, say 50%, and accumulating the same terminal cost might handle two tons.

You cannot re-construct conditions on the entire line to fit Arkansas conditions. If you want to do that, the thing to do is to begin at the other end and make the line and terminal analysis upon the entire line. You cannot carry the Arkansas situation out to the whole railroad, because when you do that you immediately assume exactly duplicate Arkansas operating conditions on the entire line.

We have not assumed any such thing except to the extent that in making our prorate of interstate revenue, we did assume, in the language of Exhibit No. 4, a "closely reflective" terminal cost.

I would like to append to that a rather homely illustration that I think illuminates the situation and gets away from these technicalities that we have been discussing.

Let us assume that this hotel has a duplicate right across the street, an exact duplicate in construction and age, and in a given period it is necessary to repair its roof. They spent $1,000 upon those repairs.

1753 There is another hotel, as I say, across the street which is an exact duplicate of it, which has to repair its roof, and the actual cost is again $1,000.

This hotel, during the period in which you make those repairs, has 500 guests and if you want to spread the costs over those guests you get $2.00 per guest.

The hotel across the street has 1,000 guests, and by spreading the costs over that number we get a cost of $1.00 per guest.

If we take the $2.00 cost per guest in this hotel and apply it to the 1,000 guests in the hotel across the street, and say the cost of

repairing that roof was $2,000, it is exactly what has been done in Exhibits B, C, D and E.

I will bring that down to a railroad level. I will repeat, perhaps, an illustration that has been made before:

Exhibit 56 is our September, 1914, yard cost statement. It shows that on this entire railroad during that month we handled 593,329 cars, at an average cost of 23.2 cents per car.

In the yard at Fort Smith we handled 8,254 cars, at an average cost of 38.7 cents per car.

Let Fort Smith typify Arkansas: That average cost at Fort Smith is ascertained by dividing into the actual money spent at Fort Smith the number of cars handled in that yard. If you take that 38.7 cents and multiply the actual number of cars handled on the entire railroad by it, you find a constructive cost of $229,-
1754 618.00, whereas the actual cost as shown in this exhibit was $137,664. But that does not alter the fact that there was that actual cost incurred at Fort Smith. The parallel runs between that and our assignment of terminal cost in Arkansas. That cost was not built up on the number of cars handled at Fort Smith; it was built up on the number of switch engine hours that were worked there, as shown by the cost statement. That is what causes the expenses, not the number of cars we move. The cars were handled, it is true, as a result of working those switch engine hours, but to cut out 25%, perhaps, of the number of cars handled might not have enabled you to reduce one single switch engine hour. That is your density of traffic proposition.

Now let us take another illustration: It is Jonesboro, in Arkansas. The cost per car at Jonesboro was 35.9 cents. If you apply that to the number of cars handled on the entire railroad you get a constructive cost of $213,005, as against an actual cost of $137,664.

The statement shows that in the month of September, 1914, at Jonesboro we worked two crews, a day crew and a night crew. We paid those two crews for the services they performed. We had to keep them there to protect that yard, and we incurred an actual cost of $1,804. We handled 5,018 cars. Having to protect that yard with its light traffic density—let us assume the number of cars that came there for handling were diminished about one-half, or cut to 2,500—we could not take away one dollar of that actual
1755 expense in the Jonesboro yard, but the cost per car would have been twice as great. There is the Arkansas situation in our terminal cost versus the entire line.

The costs are not built up in the Jonesboro yard on the number of cars handled any more than our terminal costs in these exhibits are built up on the number of tons handled. The cost is incurred, true, as a result of the tonnage, and the cars in this instance being handled, but it is not apportioned between line and terminal on the basis of the number of cars or tons. I cannot make it any plainer.

Mr. Hill: Defendant by consent considers as in evidence all of the article by Professor J. B. Berry, appearing in the Report of the American Engineering Association, and either side may read such portions of it as they may desire, or all of it.

At this point adjournment was had until eight o'clock P. M. on Saturday, November 14, 1914.

1756 November 14, 1914, 8 p. m.

After adjournment the following proceedings were had at 8 o'clock P. M. on Saturday, November 14, 1914:

L. N. SIMSON, recalled, testified on behalf of the defendant in surrebuttal, as follows:

Direct examination.

By Mr. Hill:

Q. You put in testimony showing that under the direct allocation of the old formula and the direct allocation of the new formula various items which should be identical were different, and you put in one exhibit (Exhibit G, I believe it was) illustrating that on the one item of the Memphis terminal there was a difference of about seventy odd thousand dollars.

Mr. Hamilton testified, as I recall the substance of it, that this item in Exhibit G covered most, if not all of the items which should be directly allocated in each formula which were not.

I wish you would look into that further and see if he is correct.

A. There are some accounts that have not entered into the list handled by the Memphis subdivision and which do not appear in the accounts which they have distributed and on which there are very considerable differences.

Q. Take up some of them and explain that, please.

1757 A. Under "transportation expenses" for the year ended June 30, 1913: "Injury to persons" under the old formula there was distributed to Arkansas $77,349.95, while under the new formula it was $52,768.35.

Q. A difference in round numbers of about $25,000?

A. A small part of that, however, is "common"; some part of it, I do not know what part, is not directly apportionable and probably should be divided on the basis of the located charges.

That is true in the new formula, I believe.

Under "Damages to property" the old formula located to Arkansas or assigned to Arkansas $11,537.72; while under the new formula only $9,888.63 was assigned—a difference of say $1,500.

Q. Those should be actual in each instance?

A. There is an element of "common" in them, or unlocatable, which must be arbitrarily apportioned.

Q. But both formulas call for direct allocation, do they not?

A. Yes, sir. The new formula qualifies the method of apportioning the common expense, however.

The old formula was silent on the method of apportioning "common."

Q. What other items do you find, not covered in that Memphis terminal proposition?

A. Account No. 77, "Operating joint yards and terminals—debit."

Under the old formula it is $140.42 and under the new
1758 formula it is $15.

There is a slight difference also in Account 78, which has the same title and covers the "credit."

Under the old formula it is $2,676.29, and under the new formula $2,491.78.

Q. Have you there that account "stationery and printing"? I was looking at that.

A. I cannot find it here.

Q. Are there any other items you notice there?

A. There may be others. I have not a list of them. I have not culled them out.

Q. These you have just given are not included in your Exhibit G?

A. No, sir, they are not covered by the distribution made by the district subdivision of Memphis.

Q. So far as they go they are instances of comparing apples and potatoes?

A. I will have to take that back as to items 77 and 78. They were covered.

Q. What are those?

A. The debit and credit accounts "Operating joint yards and terminals."

Q. These instances you have given are cases of comparing potatoes and apples; what is actual in one formula with what is not actual in the other formula?

A. Yes, sir.

1759 Q. Now, in regard to some evidence you gave in your direct testimony—I don't think it is an exhibit—as to the effect that the assignment of expenses by primary accounts instead of by aggregation, and that would have made a difference of about $7,000: Mr. Hamilton testified that if that had been worked out by applying Company material it would have been about $8,000 the other way.

Mr. Moore: Mr. Hamilton says you have not stated correctly what his testimony was.

Mr. Hill: State it, Mr. Hamilton.

Mr. Hamilton: First applying Company material adjustment, and then making the equation on the individual Interstate Commerce Commission accounts, subdivided between freight and passenger, and treating the freight and passenger separately.

Q. Does not that affect the assignment to Arkansas, Mr. Hamilton?

Mr. Hamilton: Yes, it does, in the difference in relationship between freight and passenger proportions of the various accounts.

Q. How do you explain that, Mr. Simson?

A. My understanding is that that has been applied as the Company material adjustment was applied: so, that out of the total expenses first Arkansas proportion was set aside; and the Arkansas proportion was divided between line and terminal; and each of these in
1760 turn was divided between freight and passenger, before the Company material adjustment was made.

The Company material adjustment did not result in any increase

of the original assignment of expenses to Arkansas, but simply in the re-arrangement as between line freight, line passenger, terminal freight and terminal passenger.

Q. That is the way you interpret the formula and the exhibits, is it not?

A. That is the way I interpret the exhibits more particularly than the formula. I do not remember the formula so well.

Q. Under that interpretation, then, the question of the assignment to Arkansas could not be affected by the after distribution between freight and passenger?

A. It could not be affected, if I understand it rightly, by a re-adjustment to apply the cost of handling non-revenue freight as between line and terminal and freight and passenger.

Q. The proposition you were ascertaining is how much revenue and how much expense should be assigned to Arkansas, to begin with?

A. Yes.

Q. While we are on that Memphis Bridge expense: I want to ask if the part of this expense growing out of the Memphis Bridge is assigned to Arkansas intrastate?

1761 A. Yes, sir, the method of handling expenses would make some of the expenses on the bridge be assigned to Arkansas intrastate, in spite of the fact that all of the revenue on the bridge has been classed as interstate.

Q. Mr. Simson, I wish you would take up Mr. Hamilton's exhibits where he averages property, taxes, hire of equipment and rentals: I don't remember the number of them.

Mr. Hamilton: I think it is all on one exhibit.

Q. No, there are two of those.

You understand the principle of them, Mr. Simson, and you can put in the number afterwards.

I wish you would express your views.

A. Exhibits 58 and 59 are the ones.

Exhibit 59, "Taxes", takes state Exhibit O-1 and uses the figures contained therein in the statement of total business for earnings and for operating expenses, and subdivides them between intrastate and interstate freight, and intrastate passenger and interstate passenger, mail and express.

It also carries the taxes at a five year average figure of $74,695.04 instead of the amount of $45,282.00 as shown in Exhibit O-1 and in the Company's Exhibit 27-A.

It has likewise, in the same manner, averaged the rental income and the property values, subdividing in each instance the figures as between freight and passenger and intrastate and interstate.

1762 In Exhibit 58, in summarized form, the same changes are made, adjusting to the average basis as to the taxes, rental income, and property valuation, the results as shown in Exhibits K-1, M-1, N-1, O-1 and P-1.

I cannot agree with the idea expressed in Exhibit 59 that it is proper to average these charges and credits to the net operating income.

The equation method carries with it necessarily the idea that oper-

ating and traffic conditions and all other conditions were the same in 1907 as they were in 1913.

The distribution, and the only distribution, that is made under the new formula, is for the year ended June 30, 1913, and it is sought to make that distribution applicable to the year 1907 by the comparison and equation methods.

The equation method is not carried to the question of taxes, to the question of rental income or to the value of the property on which the return is sought.

It is not proper to carry the equation method to that point; neither can I think that it is proper to carry the averages to that point—with this sole exception, that the item of hire of equipment, which closely follows the operations and is dependent to a certain extent upon operations, might possibly have been handled by the averaging method.

Q. It is not considered an operating item, within the meaning of that term, is it?

A. It is not so classed by the Interstate Commerce Commis-

1763 sion in its classification of accounts.

Q. It is closely analogous thereto, as I understand you?

A. It is dependent on it to a certain extent. It is a matter really of rental of property.

Mr. Moore:

Q. It is used in operation?

A. Yes, sir.

Mr. Hill:

Q. If that had been averaged in this case what would have been the result?

A. It would have reduced the debit to income from about $6,600 to $4,185.88.

Q. Using Mr. Hamilton's expressive phrase, if this has been a chemical analysis there would not be a "trace" in the result, would there?

A. Hardly.

Q. Passing the things of more moment, is there any logical basis for averaging taxes?

A. No, sir.

Q. What do you think of this thing of averaging property, taking the average of the property upon which they are seeking a return, for a five years' period?

A. I cannot see any reason for doing that. It appears to me to be preposterous.

Q. I want to call attention to some of the testimony of Mr. Frank Nay given on page 868 of the record. In his redirect examination, Mr. Moore asked him this question:

1764 "Mr. Nay, in your former cross-examination you were questioned by Judge Hill as to the propriety of using one period to affect conditions of another, by earnings, and you stated, if I remember, that where operating conditions were similar that the result

would be correct: I would like you to state what were the operating conditions that you had in mind when you made that statement.

A. If I understand, Judge Moore, that refers to where one period is taken as representative of a longer period, or, perhaps, previous years, and that the operating conditions would be similar or normal, I forget just the language that was used——

Q. That was practically what you stated, that they would be similar where it was——

A. One of the things would be the road mileage, the miles of road operated. If the mileage had not changed much that would be one element to be considered as to the normality or similarity of the conditions.

Then a second one would be the load per train, the number of tons per train, or the passengers per train, if that had remained much the same. Of course, when it gets away from the road mileage into operating statistics no periods would be just the same, but if they were similar then that would be another thing to consider.

Another thing would be the average length of haul of the freight or passenger: If that had remained substantially the same it would indicate a similarity in the traffic and conditions, one of the things to be considered.

Then there is the relation of the empty car movement, in the case of freight, to the loaded car movement. If there was a decided difference in that percentage from one period to another than that would indicate that there was something different in the two periods. If they were substantially the same, not far apart for the two periods, that would be one of the elements to be considered.

There is also the relation of the intrastate and interstate traffic: If they were substantially the same, that is, substantially the same percentage of the total traffic was intra and inter it would indicate similar conditions.

1765 Another thing is the assigned expenses in proportion to the traffic, that is, in this case the proportion of Arkansas expenses to the total of the road, and the proportion of the traffic to the total of the road. If in one period the expenses should be, say 15% of the total, and the traffic should be, say 18%, and in another period the expenses should be 13, 14, 16 and 17 per cent, and the traffic be within a few percentages, it would indicate somewhat similar conditions.

Those are six items that I have made a memorandum of here that would indicate a similarity or a difference in conditions according to whether the relations of the various items were similar or different. None of them could be considered to govern, but they should all be taken in connection. Possibly there might be others, but those are the six things that came to me when I gave this matter some thought.

Q. Those are the conditions, then, which you think would affect the question as to whether one period could be taken as representative of another?

A. Yes, if all those taken together—the relation between the road mileage about the same, the relation between state and interstate, the empty car mileage and the loaded, and so on, were similar, then

I should think one period might be fairly taken as representative of another."

Has Mr. Nay's views as expressed there found any reflection in your statistics?

A. I had not read Mr. Nay's views and I did not know of them. But the average normal result as worked out in Exhibit O-1, and the other exhibits, is certainly a reflection of those views.

Q. I want to call your attention particularly to this one:

"Another thing is the assigned expenses in proportion to the traffic, that is, in this case the proportion of Arkansas expenses to the total of the road, and the proportion of the traffic to the total of the road. If in one period the expenses should be, say 15% of
1766 the total, and the traffic should be, say 18%, and in another period the expenses should be 13, 14, 16 and 17 per cent, and the traffic be within a few percentages, it would indicate somewhat similar conditions."

That is, in this case, the proportion assigned to Arkansas as compared to the rest of the line.

Now, as I understood Mr. Hamilton this afternoon, that was one of his criticisms. That was one of the criticisms of your system of averages, that you averaged the relation of Arkansas to the entire line.

I will ask you if it is important that should be averaged, as Mr. Nay indicated was one of the reasons?

A. Yes, sir. In Exhibit H-1 the amount of revenue that was earned in the four months ended December 31, 1907, was 36.98% of the revenue earned in the fiscal year ended June 30, 1908.

In the succeeding year, in the same period, 35.75% was earned; that is in the fiscal year ended June 30, 1911, $14,888,501.32, or 36.45% more earned in the identical four months' period.

In the succeeding year, in the same periods, 36.39%. While in 1913, the year on which the equation is based, 36.21% were earned.

Now, covering the same fiscal years ended June 30, 1908, 1910, 1911, 1912 and 1913, and in the four months ended December 31, within each of these years, under maintenance of way, the ex-
1767 penses were 39.95% of the total in the first year mentioned; and the next year it was 41.47%; in the year succeeding it was 45.11%; in 1912, it was 40.28%; and in 1913, it was 38.58%, the lowest of the five years.

In like way, under maintenance of equipment, the percentages were from 43.66% in the test period of 1907, down to 32.44% in 1913, the basis of the equation.

Under traffic expenses it ran from 35.08 down to 33.19%. The two ratios being for 1907 and 1912, respectively—that is, these four months.

In transportation expenses, which is the largest group, it varies from 37.09% in 1907, down to 34.74% in 1913; this latter amount, however, being next in size, in the five years, to that of 1907.

Under general expenses in 1908, the proportion is 34.45%, while in 1913, it was 32.99%.

The averages have been stated heretofore.

It appears to me that traffic conditions must be materially different to produce as wide a variation in these five years in the amount of the expenses within the same period of a fiscal year.

It seems to me that it is right and equitable to bridge the gap between the equation period and the test period by averaging the results of the entire period.

This is really what the equation method calls for. It says on its face, practically, that in order to make an equation method a
1768 proper method, 1907 and 1913 must be identical; and they are not.

Now, of these amounts, within the four months ended December 31, 1907, which was applied or apportioned to Arkansas, and for the four years, individually, ended June 30, 1913, the Company has sought to apply its new formula first to 1913 direct but using factors obtained in a subsequent period; and, secondly, by apportioning to Arkansas for 1907, by way of 1913, its results in 1913, under the new formula.

Now, further, it seems to me it is as necessary to a correct and equitable solution of this problem, that not only should an average four months' period be obtained, but that an average assignment to Arkansas should result covering all this period under discussion; that is, to make it logical to reach 1907 by way of 1913.

To this end Exhibit I-1 has been prepared and produces the average ratio of Arkansas to the entire line for the period of four months ended December 31, 1907, and the four fiscal years ended June 30, 1913.

Q. Do you think Mr. Nay is right in saying that one of the controlling factors must be the normality of the relation of the state to the entire line to obtain a normal condition in a test period?

A. There is no question about it.

Q. Explain a little bit why that is true.

A. An abnormal period would not furnish a fair test upon which to base any equation. The application of the formula as ap-
1769 plied by the Company in this instance is predicated upon the idea that a fair normal average must be used or it must be based upon a fair normal average.

Unless this conclusion is reached and unless this end is reached, of obtaining a fair, normal average, it is impossible to get a fair result.

Q. What I am specifically calling your attention to is the relation of the state to the entire line.

Take the revenue side of it, first: Is not the revenue dependent in any given state of a system largely upon the revenue of the entire system?

A. Yes, sir, a road of size develops fairly consistently. It does not necessarily have the same volume of traffic in all its parts. The branch lines are frequently of lighter traffic producing qualities than the main line.

Q. Is not a large part of the revenue—at least, a material part of the revenue—assigned to the state in segments, reflecting only portions of the line affected by it?

A. Yes, sir, and this would be particularly true of the Frisco lines.

Q. In Arkansas?

A. Yes, in Arkansas.

Q. Why?

A. Because of the peculiar physical conditions of the tracks. They cross or enter three corners of the state, and the main line traverses the state both to the southeast and to Texas. And
1770 a large part, at least, of the traffic it has been testified is trans-state traffic. By trans-state, I mean traffic that originates at one side of the state and passes through it en route to another state.

Q. And it may pass through a corner, or through a large part of it, may it not?

A. Most of it in Arkansas is comparatively short haul. That is, I think 140 miles of the Kansas City-Memphis and about 110 miles in the Texas line.

Q. Therefore, the revenue assigned to the state necessarily finds reflection on the business of the line as a whole, more or less?

A. Yes, sir.

Q. Take up now the expense items: Take maintenance of equipment: That is one of the large items; that is probably 25 or 30 per cent of the whole expenses?

A. It is a little over 20%, on the average.

Q. How are the expenses of maintenance of equipment assigned to the state?

A. I would have to have the formula.

Q. It is on some "pooling" arrangement, is it not?

A. Yes, sir.

Q. A pooling of passenger cars and locomotives—although it is different in detail on the locomotives?

A. In a general way, yes.

Q. And then an assignment on the passenger mile pro rate?
1771 A. Yes, sir.

Q. On the locomotive it is a little different?

A. The repairs on locomotives are assigned to Arkansas on the basis of average mileage repair costs.

Q. And on freight and passenger cars?

A. Because they move all over the railroad.

Q. I believe you are right about the locomotives.

A. Yes, sir.

Q. The movement of cars over the whole system, the way the expense of their maintenance is compiled would necessarily be a factor in determining the amount of earnings of Arkansas?

A. Yes, sir.

Q. Aren't there quite a number of articles, without going into the details, that are so disposed of?

A. Yes, sir, a number of them.

Q. General expenses are more or less so reflected? It is an overhead proposition, but how do they get a part of the state?

A. Yes, sir, a large part of it at least is assigned on the basis of the assignment of all operating expenses, Accounts 1 to 105, inclusive.

Q. The amount assigned to Arkansas would necessarily find deflection in the relation of Arkansas to the entire system, would it not?

A. Yes, sir.

Q. Are there any other concrete examples you call to mind
1772 just now to justify Mr. Nay's proposition?

A. I think Mr. Nay's proposition is thoroughly sound throughout.

Q. I notice in Mr. Nay's testimony that he says he gives six reasons that would be fairly representative of a similarity or difference in conditions according to whether the relations of the various items were similar or different: He did not mention the ratio of operating earnings and expenses: Do you think that would be a proper item to include?

A. I kept studiously away from contrasting earnings and expenses. The question of adequate earnings is the question at issue and any averaging system which contrasted the earnings and expenses would not, in my opinion, have been a proper one.

Q. Mr. Hamilton has called attention to the fact that in re-forming your exhibits on the average cost as they were necessarily reformed owing to a mistake made in the mileage on which the expense were taken, that there was a large sum of money, $9,000,000, the aggregate of five years, which was the excess of expenses due to the erroneous mileage; and that this sum had been put through an averaging process with the results, not essentially changed from the averaging process without this excess:

Now, I will ask you if there was any reason why the size of the sums would affect the results that had been obtained by the
1773 application of the principle shown in your exhibits?

A. No, sir. On a careful examination there is no reason why these apparently large differences to start with should reflect any material difference in the result.

The amount of $9,000,000 referred to may be considered as representing the expenses of the North Texas lines for a period of five years. These expenses were included originally in error and by their elimination new average ratios to the expenses of each group for the four months as opposed to the fiscal year were necessarily computed.

These varied slightly from the percentages in original Exhibit H and the like exhibits.

Substantially, however, the amount of expenses in Texas on the average for a four months' period, as distinguished from the fiscal year, were a like per cent for the like expense in like periods on the lines north of the Red River.

For this reason the percentages as shown in Exhibit H-1 covering the total five years' operations do not materially differ from those contained in original Exhibit H.

But when Exhibit I-1 was made the average ratio of Arkansas to the entire line was considerably increased by the elimination of the North Texas lines' expenses.

At first glance it would seem that this increase in these ratios ap-

plied as they were applied in Exhibit K and subsequent exhibits, would necessarily increase the average assignment to Arkansas which has been termed "a normal average."

1774 It is not true, however, as the expenses of the entire line for the year, from which the average four months' period was apportioned, were first reduced by the elimination of the expenses in Texas. So as we have a lesser amount of expense on which to base a higher ratio, the result would not necessarily be at all in accord with the results under the original Exhibits H and I, and similar exhibits.

But it so happens that the decrease in basing expense is compensated by the increase in the ratio.

Q. That probably proves that the same condition of affairs existed in Texas that existed on the whole line and in Arkansas for the same period?

A. So far as the four months in the last four months of the calendar year of the fiscal years ended June 30, is concerned.

Mr. Hill: At this place I want Mr. Press to read into the record the report of the Frisco road to the Oklahoma Commission for the year ended June 30, 1913, on the density of traffic: Passenger—number of passengers carried one mile of road, 78,969; on freight, the number of tons carried one mile per mile of road, 427,646—that is it.

Mr. Simson, Mr. Hamilton contended, as I understood his contention, chiefly that the expenses in Arkansas, particularly terminal expenses, were heavier than on the entire line on account of the density of traffic being not so great.

The statistics already in the record show, in round num-

1775 bers, for the four months of 1907, that the freight traffic in Arkansas was substantially 10% less in density than the freight traffic on the entire line, and the passenger traffic was substantially 19% less in density than the passenger traffic on the entire line:

Q. I will ask you, in view of these facts, what effect, if any, in your opinion, this would have upon the exhibits of constructive cost which you have put in here showing a large excess growing out of applying these unit figures to the actual expenses of the system?

A. I don't know that I can well answer that question. If the amount of traffic which is handled by the facilities provided—be it much or be it little,—just utilized those facilities, and the facilities are such as to be operated with the utmost economy, density would cut but little figure, further provision under those circumstances being made for further necessities.

The effect of a thin traffic would probably have a greater effect on passenger than upon freight, inasmuch as it is necessary to run passenger trains for the convenience of the public whether the trains are filled or not. Freight is to a greater extent, at least, under the control of the necessities arising from the tonnage presented.

Q. That, Mr. Simson, seems to be an answer in the broad sense,

and it seems to me you are exactly correct, but calling your
1776 attention specifically to the expense proposition: These passenger trains have to run and do run?

A. Yes, sir.

Q. Is that expense materially changed? While, of course, the result to the railroad company is materially changed on the revenue side of it by thin traffic, but is the expense to the railroad of the passenger traffic materially changed by the lack of density within the limits of those trains that did run?

A. No, not materially.

Q. When the fixed number of trains are running then the expense of the road will be substantially, if not exactly, the same whether they are loaded 75% or 100% of their capacity, would it not?

A. Yes, substantially so.

Q. Of course, their revenue would be affected probably 25% by reason of that, but the expense would not be, would it?

A. No.

Q. Is that a control-able factor with the railroads where they have enough traffic to justify a certain number of trains and a certain number of coaches to those trains, whether they are filled half full or more?

A. No, that is not in the passenger service entirely, at least, under the control of the railroad company. The question of serving the public adequately must be met whether the traffic fully justifies any other expense the service——

1777 Q. I believe Mr. Frates expressed himself on that line yesterday, did he not, that there had to be a surplus power in the engines and a readiness to serve in the passenger service that was not in the freight service?

A. I believe he did.

Q. That is sound whether he did or not; it is a fact?

A. It is undoubtedly a fact.

Q. So taking the expense side alone, would you say there would be any material difference in the expense to the railroad on 20% difference in the passenger traffic?

A. No; I imagine that the facilities run could take care of a 20% addition without any additional expense.

Q. Take the freight side of the expense, wholly away from the matter of revenue: Is that just the same as the passenger?

A. Not quite. There still remains the necessity of serving the public by running trains sufficient to move the commodities offered, but it is not always necessary to run a train per schedule, and, naturally, the freight traffic can be better controlled in that respect. That is not always true. There is the question of perishable freight, live stock, which must be moved with almost passenger rapidity, but ordinary dead freight can usually await the reasonable convenience of the carriers.

Q. Economy could be made in operation in proportion to the density of traffic, or in some proportion, whether in exact proportion or not?

1778 A. In some proportion, yes, sir.

Q. I believe Mr. Frates illustrated their high class freight train that had to run probably like passenger trains—like merchandise and local freight trains, and others that probably could not be controlled by the traffic that was ready, but that in other instances it could: Is that in accordance with your railroad observation, too?

A. Yes, sir.

Q. Coming back to the proposition in your exhibit here of the constructive costs—I don't remember the exact amount but say applying these units that were built up in this case for terminal and haulage costs, and the costs of the line is $7,000,000 or $8,000,000 in excess above the actual: Can that be accounted for by reason of the density of traffic in Arkansas being 10% less than the line on freight and 19% less on passenger?

A. No; not except I should say in a very small part.

Q. Mr. Hamilton brought in another element here as a ground for contending that the Arkansas terminal expenses were heavier than that of the line, and that is the long and short haul proposition: Does that affect this proposition and the exhibits you have built up, in any way?

A. The distance hauled can have no affect whatever on legitimate terminal expenses. The terminal expense, according to the formula, is an expense of originating and delivering traffic, and

1779 that expense, by reason of the methods set forth in the formula, has been sought to be set out separately and apart from the line or haulage expenses, and the question of the distance a particular ton is hauled can have no relation whatever to the amount of the terminal expense.

Q. As I understand this formula, and the testimony of Mr. Hamilton and Mr. Nay in explaining it, they have gathered up those terminal costs every where that they touched, not only at the yards and the stations, but everywhere else that an expense occurs which is terminal in its nature; that is originating and delivering freight and its incident they have gathered up into the total terminal costs: That is the way you understand it, is it not?

A. Yes, sir.

Q. When those elements of expense, either what they made and occurring at any place on the line of the railroad which from their nature are properly attributable to terminal, are segregated from the line and are set up as terminal costs, has that expense any relation whatsoever to the haulage of the freight that moves between any given terminal?

A. As a general matter of transportation it is one department of it. As a matter of determining the amount of the haulage costs, no.

Q. Of course, it would make a big difference to the railroad how far that freight is hauled and how that expense is spread over the result in the revenue, I presume, will it not?

A. Yes. The haulage has to absorb the terminal cost

1780 because the rate is for transportation between the two points, which includes the terminal expense.

Q. That is a separate proposition, though, entirely, from what you based your exhibits upon, is it not?

A. Yes, sir.

Q. I have written down hastily a little rough example here and I want to see if that meets the situation here: Suppose a ton of freight moves 25 miles and has two terminals, of course, with a cost of 31 cents for each: That would be a total terminal cost of 62 cents. This haulage cost is approximately 4½ mills, is it not?

A. Yes, 4.65.

Q. Call it 4½, for each mile: For 25 miles that would make 12 cents haulage cost, or a total of 74 cents as the expense on that ton of freight. Suppose the rate for the haul of that ton was $1.00, or, rather, the revenue ton rate was $1.00, that would give a profit of 26 cents over the operating expenses?

A. Yes, sir.

Q. Suppose that freight was hauled 100 miles: For the same ton of freight, or a similar ton of freight, your terminal costs would be 31 cents at each end, or 62 cents; the haulage cost would be 45 cents, or a total of $1.07: If the revenue was the same you would lose 7 cents on that, but as a general proposition the rate increases with the distance, but not in proportion to the distance, and we will assume, say, that the rate on that would be $2.00, al-

1781 though the haul was four times as long: That would leave a profit of 93 cents on that particular shipment?

A. Yes, sir.

Q. Does that example illustrate the relation of terminal and haulage cost, and the revenue that is involved in it?

A. Yes, exactly.

Q. Then how can the long or short haul enter into this question of terminal cost at all if this example were illustrated?

A. There is no necessary relation between haulage and terminals. The only place where the length of the haul enters into it is that the haul must eventually, through the revenue, absorb or compensate for the terminal expense. The rates are built to cover the transportation between the two points, which includes the terminal expense.

Q. If the rate does not absorb it and the haulage cost they lose money?

A. Yes, sir.

Q. If it does absorb it it is profit and they make money?

A. Yes, sir.

Q. Another phase of thos- exhibits of constructive cost I wanted to take up in another connection, but I did not do it, so I might as well take it up now. Turn to your Exhibit C: What I want to get at is the relation of freight and passenger: The relation of freight and passenger is about 20 and 80, in round figures, for freight, is it not?

1782 A. Yes, sir. The total expense, in round figures, as constructed in these unit costs is $25,300,000, of which $19,500,000 are freight and $5,800,000 are passenger.

Mr. Moore:

Q. You are referring to your Exhibit C?

A. Yes, sir.

Mr. Hill (to Mr. Hamilton): Have you any separation on the entire line on that? I did not find any. I would rather have the actual than the constructive freight and passenger.

Mr. Hamilton: No, sir. The only place I recall is when we compared the entire line total with the Arkansas total is in Exhibit No. 7.

Q. Does it not run about 20 to 80?

Mr. Hamilton: I never made a line division between—an entire line division between freight and passenger.

Mr. Hill (to Mr. Press): Do you know?

Mr. Press: I don't know. We have never made any entire line division as between freight and passenger.

Q. Accepting these as being fairly representative of the two classes of service, and coming back to the question we were discussing a few moments ago, there is only 10% less density in freight traffic in Arkansas on the entire line, and in view of the fact that 80% of this expense is freight traffic, do you think that that 10% would have a material bearing on that $19,000,000 of freight expense?

A. Not a very great one.

1783 Q. I believe you have already explained that in passenger it would have less bearing than it would on the freight service?

A. I think it would.

Q. Then in view of the facts that you have given and the opinions that you have expressed, concerning this $7,000,000 or $8,000,000 excess cost—coming to the alternative that Mr. Hamilton had, that it was either the extra expense in Arkansas or else the formula was wrong, what conclusion did you reach on that?

A. It might be a combination of both.

Mr. Moore (to Mr. Hill): How do you find out Mr. Hamilton had that alternative?

Mr. Hill: That was the question I put to him. It is in the testimony, that it was one or the other.

Mr. Moore: Did Mr. Hamilton make that statement?

Mr. Hill: No, I made the statement and put the alternative to him.

Q. What do you say, Mr. Simson?

A. It must be one or the other, or perhaps both.

Cross-examination.

By Mr. Moore:

Q. Mr. Simson, in regard to the matter of equating prior period expense assignment to Arkansas, look at Exhibit No. 27-A, page 13, and tell me if the equation which produces the assignment of expenses to Arkansas is not made upon freight and passenger expenses separately.

1784 A. I haven't the exhibit, but I know it is.

Q. I thought you stated to the contrary on your examination in chief.

A. No, sir, I don't think so.

Q. I understood you to do so. If you did, you did not mean that?

A. I certainly did not mean—will you repeat your question, please? I want to be sure that I understand your question.

Q. I asked you to look at Exhibit No. 27-A, page 13, and state if the equation which produces the assignment of expenses to Arkansas is not made upon freight and passenger separately?

A. In Exhibit 27-A, as applied to the four months ended December 31, 1907, that is true.

Q. Is it not true also in all the other years?

A. It is true for all the other years with this exception: That the basis of the equation is made upon the year ended June 30, 1913, which produces the equating figures.

Q. Is not that the process and not the basis that you are talking about?

A. That is the process, yes, sir.

Q. You spoke of some differences, among others a difference of $25,000 in personal injuries that the new formula assigned less than the old formula to Arkansas: Did not the equating process cut down such excesses in the prior period?

A. I don't know; I did not follow that through to that
1785 end.

Q. Would it not have that effect?

A. It depends upon what the equating percentages were. They are not equated by individual accounts, they are equated by subtotal groups, and I have never followed that through.

Q. You did find some items in the Memphis terminal figures in Exhibit G which were also concerned in your comments on direct allocation, did you not?

A. I presumed that the failure to apportion certain expenses, certain transportation expenses, largely, to Arkansas from the Memphis terminal subdivision might have an effect of harmonizing the differences between an apportionment or distribution under the two formulas. I had no means of verifying the fact that that would straighten out the differences, and under certain accounts I know that it could not, because they are not accounts listed as handled by the Memphis terminal. This "injuries to persons" is one of those.

Q. You say that the equating method requires that all operating conditions must be the same in all railroads. Would you not say rather that operating and traffic conditions relatively, as between freight and passenger, and state and interstate, must be the same?

A. No. I think the basic conditions of traffic and operating are the conditions to be considered.

Q. And the only conditions?

A. I think they are the control-ing conditions.

Q. When the rates collected by the railroad company have
1786 changed from 3 cents to 2 cents, back to 2½ cents and then to 3 cents, is it fair to average a gross income of all these periods to represent the conditions under the 3 cent period?

A. The equating method follows that assumption, that it is by reason of the equation.

Q. I am talking about the average conditions.

A. The equating condition is substantially an averaging condition.

Q. Is your method of averaging justified under those conditions?

A. Yes, I think so.

Q. You said that about 25% of the maintenance of equipment for the whole line is assigned to Arkansas: Will you look at Exhibit 7 and see if it is not 10%?

A. I did not say any such thing. No, sir. The question was as to what proportion of the total expenses the maintenance group was. It is from 20 to 25 per cent.

Q. Do you say that any averaging system which contrasted earnings and expenses would be improper, is it not a fact that you have contrasted the averages of earnings and expenses in your Exhibits J-1, K-1, L-1, O-1, P-1 and Z-1?

A. No, sir, no averaging is included for earnings other than earnings accounts, or for the expenses other than expense accounts. There is no contrasting of averages.

Q. Don't you contrast earnings and expenses in those exhibits?

1787 A. The earnings and expenses are brought together, certainly, in the exhibits——

Q. Are they not on an average basis——

A. They are on an average basis within their own limits. The amount of expenses is in no way dependent upon the amount of earnings.

Q. They are both averages, though, are they not?

A. They are both averages, but averages within their own limits.

Q. Is it not a peculiar method of averaging that would practically eliminate errors amounting to $11,000,000 in one of your exhibits, and to almost as large a sum in others?

A. I think I have already explained the reason the results are substantially the same after eliminating the Texas expenses. I did that in answer to Judge Hill's question. I can repeat it if you wish me to.

Q. I am not asking you to repeat it, but I ask if it is not a rather peculiar method which would eliminate errors representing such large sums?

A. Mathematics is substantially an exact science, and it so happens that the basing expenses are reduced by an amount which is practically compensated by the increase in the percentages applied.

Q. Averages seem to be great levellers, too, do they not, as applied in this case?

1788 A. An average condition is an average condition, and that is exactly what I have sought to set forth.

Q. Mr. Simson, do you ever hear the term "average of probabilities?" I think there is such a term used, or something like it.

A. It is news to me, I have never heard it.

Q. I was going to ask you if you had not applied that method in your averaging system applied in this case.

You referred in one of your answers awhile ago to Judge Hill to the impropriety of equating two periods where one or more of them were abnormal: Is there any period in these years represented in these exhibits that is abnormal?

A. There are periods where there are decided variations, if that is what you mean by "abnormal."

Q. You used the word "abnormal:" I want to know what you mean by it.

A. Any decided variation creates an abnormality.

Q. That is the sense in which you used the word?

A. Yes, sir.

Q. If a railroad earns 5% one year and 7% another year, which one is abnormal?

A. That is not a question to which that term can be properly applied.

Q. I did not think so myself.

A. I might add to that, that like conditions are a basis, as would be necessary in the equating method, and if the conditions

1789 are not alike, that the equating method would not apply.

Q. Mr. Simson, does not the distance that traffic is hauled on the average have a vital effect upon the aggregate terminal expense?

I cannot see that it does. Terminal expense is one class of expense, and haulage expense is another, and each stands upon its own basis.

Q. But I said "aggregate terminal expense:" Bear that in mind. Having that in mind, does it not do that?

A. I cannot see that that has, any more than an individual terminal.

Q. If all the tonnage of a railroad was hauled a distance of 200 miles, the terminal cost would be less in the aggregate than it would on a railroad with the same ton mileage, but 100 miles in length of haul, would it not?

A. Pardon me, I don't get that.

(Previous question read.)

There would be more shipments, yes, sir.

Q. Would there not be more terminal expenses if there were more shipments?

A. That is true, but there would be the same terminal expenses provided the ton hauls—irrespective of whether the ton hauls are 10 or 100 miles each. I might add to that further, that the ton miles is not considered in the terminal expense, but the tons hauled.

Q. Do you think you understood my question?

1790 A. Yes. All other things being equal, it would be just one-half, but there would be twice the number of tons hauled.

Q. I said the same tonnage.

A. No, you said the same ton miles.

Q. How could there be one-half the terminal cost with twice the tons?

A. Well, there would be twice as many tons hauled one-half the distance.

Q. Mr. Simson, suppose a railroad is 100 miles long and you ship a carload of freight the entire length of that road today. At the same time you ship another carload one-half that distance, 50 miles, and another one the other 50 miles of that distance: Tell me how the terminal expense of the two shipments would contrast?

A. You have three shipments, I believe?

Q. The two with the one.

A. The two with the one?

Q. Yes, two shipments of 50 miles each with the one.

A. There would be two terminals for your 100 mile shipment, one at its origin and one at its destination.

There would be two terminals each for your two fifty mile shipments, one at each origin and one at each destination. In one instance the destination of one fifty mile shipment being the originating point of the second fifty mile shipment.

1791 Q. You spoke in your testimony while Judge Hill was examining you about the small effect that these differences in density of traffic would have on the business. I want to ask you if a change of 20% in the volume of traffic does not affect the expense of handling that traffic; and if that is the case, if it does not affect the expense of handling the traffic, the gross ton mile theory would be of no value, would it?

A. The gross ton mile theory as applied to what matter?

Q. To the division of maintenance of way?

A. I don't *m*now. I have not considered that subject.

Q. Think a little bit about it and tell me what you think about it?

A. I don't know as I want to tell you on that.

Q. All right, then I will excuse you.

Redirect examination.

By Mr. Hill:

Q. What factors does the gross ton mile consider?

A. It considers the weight carried and the distance carried.

Q. Those are the only factors——

A. Yes, sir.

Q. —it takes into consideration, are they not?

A. Sir?

Q. They are the only two factors it takes into consideration?

A. Yes.

1792 Mr. Moore:

Q. The other factor is the traffic density, too, and the weight and distance?

A. Yes, a part of traffic density is——

Mr. Hill:

Q. They are the expression of it rather than the conditions that are created, are they not?

A. Yes, sir.

Mr. Moore:

Q. You say they are the expression and not the cause of it?

A. They are the expression.

Q. Are they not the cause of it?

A. Not necessarily the cause of it. They are an expression of what traffic is moving.

Q. You mean the quantity hauled and the distance hauled?

A. That is an effect, not a cause.

Q. I thought the other was the effect. I thought the density was.

Mr. Hill: You might have an immense density just to move ten miles. It is an expression of it. It may be a long or it may be a short haul.

Q. I don't believe you made quite clear the answer to Judge Moore about the averaging of revenue and the averaging of the expenses. You stated that you average each within its limits?

A. Yes, sir.

Q. As I understand your exhibits and what your answer evidently intended to convey, you average revenue and you average
1793 expenses, but you do not average them in relation to each other?

A. That is right.

Q. When you take an operating ratio like Mr. Hamilton's exhibit with the representation of an average line in it that is averaging expenses and revenue in relation one to the other, is it not?

A. Yes, sir.

Q. You have no such system of averages in your exhibits, have you?

A. We have made no operating ratios and have based none of our averages upon operating ratios.

Q. They are totally distinct from each other, each of them is used for its own purpose. That is, the average of revenue for revenue and the average of expenses for expenses, but not in relation to each other?

A. Yes, sir.

Q. Mr. Moore asked you about a change in rates—I suppose he was referring to passenger rates during this period—one time a two cent rate prevailed; during a short time, I think about a year, a two and one-half cent rate prevailed, and another time a three cent rate in the year ended June 30, 1908. Was there any change in rates, either passenger or freight, as shown in these statistics as to Arkansas that would affect the four months' period?

A. I think not. I am quite sure not.

Q. There was a change some time, I don't recall it—I sup-
1794 pose one of these exhibits shows it, to a two and one-half cent passenger rate on intrastate. I think it lasted about 4

months. Would that have any appreciable effect on the revenue of the entire system, the intrastate revenue here, for that short period?

A. Very little on the entire system.

Q. Would it on the portion assigned to Arkansas, assuming that the four months operated under the two and one-half cent — was compared with the balance of the year?

A. Very little.

Q. It would not make any, then, would it——

A. No.

Q. Just as the year would be varied it might make some slight change?

A. Yes, sir.

Recross-examination.

By Mr. Moore:

Q. Mr. Simson, I find in your Exhibit P-1 a statement of total earnings, $1,478,145, and total expenses $1,064,445. Can you not determine the operating ratios from those two sets of figures?

A. Oh, I can do so.

Mr. Hill:

Q. Your statement was that you had not in any of these——

A. That is right.

Mr. Moore:

Q. Will you look at your Exhibit H-1 and tell me the ratio
1795 of total expenses to the total earnings for the five years' total?

A. For the five years' total?

Q. Yes.

A. I can compute it. I never have done so for the entire line.

Q. Just carry it to one decimal, that is enough.

A. (After figuring:) 67.4, if my computation is right.

Q. Is that the figure shown as the average on Exhibit 57?

A. That is what exhibit?

Q. It is Exhibit 57 of Mr. Hamilton's, but it is designated as Mr. Simson's average.

A. That is what shows on Exhibit 57, yes.

Q. The factors used in getting that were the total earnings and the total expenses, was it not?

A. That is the result, the result expressed in percentage.

1796 *Stipulation of Counsel.*

It is stipulated and agreed that the value of the property of the St. Louis & San Francisco Railroad Company in the state of Arkansas used in operation during the period covered by the exhibits filed by the complainant was, for the calendar year 1907, $15,692,338.00, and for all periods thereafter the following additions and betterments are to be added to said amount:

During the fiscal year ended June 30, 1908, $895,842.
During the fiscal year ended June 30, 1909, $108,473.
During the fiscal year ended June 30, 1910, $748,853.
During the fiscal year ended June 30, 1911, $375,503.
During the fiscal year ended June 30, 1912, $311,947.
During the fiscal year ended June 30, 1913, $165,340.

Mr. Hill: In closing this case I want on behalf of the accountants and the engineers, and emphatically so for myself, as well as for them, to express my thanks and appreciation to Mr. Hamilton and to all the officers of the St. Louis & San Francisco Railroad for their courteous kindness and consideration to us in the investigation of the difficult problems that have been presented to us.

[Here follow Exhibits, bound in three volumes, being from page 1797 to page 2300, inclusive, of the original Transcript of Record.]

2301 And on the same day the following opinion of Court was filed in the cause:

In the United States District Court for the Western Division of the Eastern District of Arkansas.

No. 1638.

SIDNEY E. BOYLE, Plaintiff,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al., Defendants.

John M. Moore, of Little Rock, Ark., for plaintiff.
Joseph M. Hill, of Fort Smith, Ark., for defendant Railroad Commission of Arkansas.

TRIEBER, *District Judge:*

This is a bill to enjoin the enforcement of what was designated as Freight Distance Tariff No. 3, promulgated by the State Railroad Commissioners of the State of Arkansas, and also the two cents a mile passenger rate established by an Act of the General Assembly of the State of Arkansas in 1907. The bill was filed in July, 1908. The usual allegations that, for the intrastate traffic in Arkansas, these rates are non-compensatory to an extent that they are confiscatory, are relied on to sustain the bill. For convenience the plaintiff will be referred to in this opinion as the company, and the defendant as the State.

A temporary injunction was granted and a new tariff of freight rates adopted under the supervision of the Court, which raised the freight rates above those established by the tariff enjoined, and restored the passenger rate of three cents a mile. In 1909 an agreement was made between the State and this Company the
2302 hearing of the cause be postponed until the final determination of similar actions instituted by the St. Louis, Iron Mountain and Southern Railway Company and the St. Louis Southwestern Railway Company, and a further stipulation that the company should make a test of the passenger rates at two and one-half cents per mile, for the purpose of determining what the effect of such a rate would be on the net earnings of the Company. For eighteen months, in the years 1909 and 1910, the company made the passenger rate for intrastate traffic two and one half cents per mile, in the State of Arkansas, and then claimed that the test showed that that rate was not remunerative, and restored the three cent rate. In due course of time the other cases were heard in this Court, and then appealed to the Supreme Court of the United States, where it was finally held that the evidence failed to show the invalidating facts by such definite and convincing proof as would justify the Court to override the action of the State upon constitutional grounds, and the bills were directed to be dismissed without prejudice. Allen vs. St.

L., I. Mt. & So. Ry. Co., 230 U. S. 533. The opinion in that case was delivered on June 16th, 1913. The week before, June 9th, 1913, the opinion in the Minnesota Rate Cases, 230 U. S. 352, had been filed. After the opinions of the Supreme Court in these and other rate cases reported in volume 230 U. S. Reports, had been filed, the General Managers of a number of the western railroads, including this company, met in conference with a number of prominent railroad officials, Chief Engineers, Statisticians, Comptrollers and General Attorneys, to devise a formula for the purpose of dividing valuations and expenses between intra and interstate, and
2303 freight and passenger traffic, upon the basis suggested by the Supreme Court in the Rate Cases, namely, by basing the division independently of revenue, but solely as found in the use that is made of the property by each. As a result of their labors a formula was prepared to be used in the apportionment of revenue, expenses and valuation of property to intra and interstate passenger and freight traffic. As this formula is a document of thirty-nine closely printed pages, and the different formulæ have been, in many matters amended to meet the conditions prevailing on the road of this Company in the State of Arkansas, it is not practicable to insert it in full in this opinion. It is filed as Exhibit 1, and may be treated as a part of this opinion. To explain briefly: There was a division of the expense between line and terminal, which was apportioned between freight and passenger and between intra and interstate traffic. Bases were prescribed for the apportionment of revenue to State freight and passenger service, and to interstate traffic. To divide the expenses formulæ were prepared to ascertain separately the actual cost of Maintenance of Way and Structures; Maintenance of Equipment; Traffic expenses; Transportation Expenses, and General Expenses. For each of these, formulæ were made covering every item pertaining to them respectively. Thus, for maintenance of way and structures there are twenty-three different items to be considered, nearly every one of them subdivided into smaller units, and for some other items even a larger number of subdivisions was made, while in others a smaller number. The formulæ for dividing be-
2304 tween line and terminal expenses contains one hundred and sixteen items.

Immediately after this formula had been made, the company made preparations for the final hearing of this case and prepared the necessary statistics in conformity with this formula. As no separate records had previously been kept by this or any other company of every items of expenditure pertaining to intra- and interstate and freight and passenger traffic, and especially such records as would enable them to make the allocations and apportionments so as to conform to the rules established by the Supreme Court in the Rate Cases, it was necessary to make special tests of the use which was made of every branch of the road, by ascertaining the separate items of expense of intra- and interstate, passenger and freight business, which could not be accurately determined from the records as previously kept. These tests were made during the months of November and December, 1913, less than five months after the decisions in

the Rates cases had been announced. In order to make these tests accurately, printed blank forms were prepared by the Company, with printed instructions to the employees on the back of the form, on which they were to report every item of cost and the use made thereof, whether for freight of passenger, intra-state or interstate traffic. Copies of these forms and instructions are filed as Exhibits to the Company's testimony. These data could only be obtained with accuracy, concurrently with the operation of the road. From the reports made on these forms it was ascertained what character of freight and in what quantities each train, freight, passenger,
2305 mixed and through, carried within the State and the expense connected therewith. To obtain this information clerks were placed upon every train running in Arkansas during the entire two months of November and December, 1913. Special yard clerks, employed for that purpose, were placed at the terminii of all through freight runs to record and report all of the contents of the trains and when they arrived and left. The conductors in charge of through freight trains were required to record the character and quantity of freight, distance hauled, the freight picked up by and set out by the train at each station between the terminii of the run. The yard clerk at the arriving terminal of that train was required to fill in on the report handed to him by the conductor, and which the conductor had received from the clerk at the departing terminal, all the data showing what was received there, and what was sent off on that train; they were also required to record what time was consumed in unloading and loading as well as switching in each yard, and by these means the data for the factors, representing quantity and quality of traffic carried on the different trains, were obtained. Similar records were required to be made as to all other matters connected with the cost of the other divisions of the formula.

For the passenger traffic, the division of expenses, both line and terminal, between straight passenger traffic, baggage, mail and express, Pullman and dining cars, was made on the "car foot mile" basis. The actual consist of cars in every passenger train was analyzed and the number of lineal feet in each train assigned to the service were determined, the measurement of the space as-
2306 signed in each car to each class of service being multiplied by the number of miles that car ran in Arkansas.

The same analysis which was made of the freight traffic was made of the passenger traffic; analysis of the number of stops and terminal delays; time devoted by yard engines to the various classes of service; the time of yard and station agents' work; the time station employees devoted to the various classes of service. All were worked upon the same detail and reported on the ground where the operation occurred. The results of the passenger investigation were ascertained from these reports and filed as Exhibit 12 by the Company.

To obtain the necessary data to allocate the expenses of maintenance of way, the section foremen on the entire road in the State of Arkansas were required to keep, during the months of November and December, 1913, a strict and correct account of the entire labor and material expenditures. An experienced man would be sent out on the

road, who would sit down with each section foreman, take his time and material books, of which he rendered a report each month to the superintendent, and classify each track over which each individual section foreman had charge, according to its use as a line track or terminal track or common to line and terminal. If it was used exclusively for the freight terminal service it was marked as a freight terminal track; if it was used exclusively for line service it was marked as a line track. The straight line tracks which were common to freight and passenger were treated separately for each. He was then required to enter on each track section (five or six miles) each day, a division of his labor and that of the men employed
2307 under him, and also the material used as between different classes of track. His time and material books were fitted to the tracks which he had in charge, each of tracks being numbered. When his reports came in they were classified, and in that way the actual maintenance of way expense for these two months obtained, and then subdivided between freight and passenger tracks and line and terminal tracks. The same method was applied to the buildings, crossings and other matters which are in charge of section foremen. As to the bridges, buildings and similar structures, the company always kept regular structure reports, in which the charges for the repairs on maintenance are kept separately, and there it was only necessary to classify these according to the use, as between line and terminal, intra- and inter-state and freight and passenger. If the expense was for the freight platform it would be charged to the freight terminal, and the same process followed whatever use was made of it. As the main line between the states was used in common by freight and passenger service, it was divided between them according to the use; for the freight service the engine ton mile was used. They divided the expense of maintenance of way between that which is charged to direct wear and tear by reason of the running of trains and that which accrued from the elements. Mr. Hamilton, the Company's Accountant, fully explained the reasons for adopting this basis, which it is not deemed necessary to set out here. After making these explanations he stated that not a single item was left to conjecture, but allocated according to the use as ascertained in the manner stated.

2308 In order to obtain the station expenses during the two months mentioned, every station agent within the State was required to make a study and keep a daily record of the time he and each of his employees devoted to freight service or passenger service, to handling of mail and express, or telegraph service, and report at the end of the month. The wages of the station agent and his employees were divided on the same basis as the freight and passenger, etc., by each employee or particular class of employees engaged in the same nature of work. He sent out some of the best men to instruct the agents before the work was begun, having them meet at central points for instruction. These records, when received, were carefully examined and tabulated. In this manner it is claimed, there was obtained a correct report of the actual use of the station force made by state and interstate freight and passenger service, and the number of

shipments each agent received and forwarded during these two months. The wages of the freight clerks who were engaged in the handling, recording and way-billing the expenses of the freight consignments were divided between state and interstate in accordance with the number of consignments of each class received and delivered at each individual station.

The warehouse force is shown separately in these reports, and they were divided on the basis of the number of tons of less than carload freight, state and interstate received at and forwarded from that particular station. Instead of simply dividing the total station expenses in the State and arbitrarily assigning them to freight and passenger, the actual cost and performance, state and interstate at each station, was localized.

The expense for terminal charges was localized to the state
2309 where the terminal is local and that state was compensated for it. To obtain the proper data the cost per ton of terminal service within the State was determined for freight and passenger by ascertaining the average cost of a ton of freight each mile and the average cost to line cost of a passenger one mile. This was reduced to the cost per mile and the mileage thus ascertained according to the number of terminals in the State. Every entry on the Company's books affecting every item of revenue was analyzed. All switching absorptions made by the company were analyzed and attached to the specific haul on which that switching was absorbed. If the switching operation was on intrastate business it was deducted from the intrastate, and the same with the interstate absorptions. The station portion of the terminal expense was divided on the basis of the actual tonnage handled in and out of each individual station during the two months. Each individual yard was treated separately and the expense of that yard treated separately. Actual account was kept of how much time each local freight train in the State switched, thus enabling them to ascertain the exact time devoted to switching and loading and unloading freight at each station by the agent at that point. These reports show how long the train stopped for other purposes, such as taking coal and water, meeting and passing trains and getting orders, and these were charged to line. By segregating the actual performance of the local and through trains it was found out how much time each devoted to this terminal and the expense was divided in the basis of that time. As local freight trains
2310 but very seldom have the use of a switch engine, the engine of the train doing the switching was charged to terminal service.

For passenger terminal expenses no switching or loading or unloading expense was charge-, as that is unnecessary. The first sixteen exhibits of the company give summaries of each of these items of expense for these two months.

The expenses of intra-state passenger traffic were divided between intra-state passenger miles actually determined within that period, and the cost per passenger mile for all expenses by this method arrived at. The same method was followed for the interstate, and thus the excess cost relation of the two determined. The excess cost of the

intrastate passenger on the basis of the use of the property, it is claimed on behalf of the company, was found to be 15.43% more than that of the interstate passenger, and for the freight service the intra-state was found to be 319.58% greater than the through.

Comparisons were made of the test period commencing with the year ended June 30th, 1913, and working back to the last four months of the year 1907, and that comparison, it is claimed, shows that the test period was reflective of and practically the same as for the other years. The difference was slightly in favor of the State, as under this formula the State of Arkansas was only charged with about 98.98% of expenses as compared with the former formula of 100. The witness selected the year 1912 as a type of all the years preceding it for the purpose of comparison. He took the amounts
which had been reported to the State Railroad Commission,
2311 and which had been ascertained to be the exact earnings and
expenses for the State on the basis of the old formula, and equated them on the basis of applying the two formulæ, the old and the new, and the result was practically the same. The method adopted is thus explained:

"The Company, in preparing its reports to the Arkansas Railroad Commission during the years ended June 30th, 1910, 1911, 1912 and 1913, used a formula for the allocation of revenue and expenses to that State, which was uniformly applied throughout all those years. It also had in use, uniformly through all the years mentioned, a formula for the division of expenses between freight and passenger service for the purpose of its own operating compari-ons. To accomplish a reassignment of earnings and expenses to Arkansas for these years under the new formula, in time to prepare for the trial, and to avoid the enormous expense incident to reworking all the voluminous details, it was felt that a proper showing of the earnings and expenses in Arkansas divided between the freight and passenger service for the years mentioned might be made by determining the relation of the results obtained for the year ended June 30th, 1913, for an actual application of the earnings and expenses of the railroad of the new formula and the formulæ formerly used in making the reports to the State Railroad Commission, dividing expenses between freight and passenger for the purpose of operating comparisons, and by equating the earnings and expenses reported to the State Railroad Commission, and as divided between freight and passenger, on the basis of the percentage relation of the results
2312 as applied to the new formula and the result of applying the
Railroad Company's old formulæ to the earnings and expenses of the year ended June 30th, 1913, in minute detail. That is to say, if a comparison of the results obtained under the new formula with the results obtained under the application of the old formulæ showed that in the year ended June 30th, 1913, the new basis assigned to Arkansas or to freight and passenger on a given time of earnings and expenses, 102% of the amount assigned to the same item under the new formulæ to the amount assigned under the old formulæ for the years ended June 30th, 1910, 1911, 1913 and the four months ended December 31st, 1907, then they have been in-

creased 2%. If, on the other hand, the amount assigned in the year ended June 30th, 1913 under the new formula was 98% of the amount assigned under the old formulæ in that year, the amount assigned under the old formulæ in the prior periods was reduced 2%. This question was applied only to such items as could not be actually allocated to Arkansas, or between freight and passenger, and could only be so allocated by means of a detailed analysis or prorate. Such items as permitted of actual direct allocation, without analysis or prorate were directly allocated in each of the years, namely, intrastate freight and passenger revenues, mail and express earnings, and special service train revenue. For the year ended June 30th, 1908, (which included the four months ended June 30th, 1907) when they had not made any assignment of earnings and expenses to Arkansas, but had reported to the Railroad Commission of that State the earnings and expenses of the entire railroad it was neces-
2313 sary to carry out the plan here outlined, to assign expenses to Arkansas and between freight and passenger for the four months ended December 31st, 1907, on a basis of the Railroad's old formulæ used in making such assignments and division in the years ended June 30th, 1910, 1911, 1912 and 1913. It was then practicable to make the same equation of earnings and expenses for the four months ended December 31st, 1907, as was made for the years ended June 30th, 1910, 1911, 1912, and 1913."

Mr. Simpson, the State's Accountant criticizes this method of equation, as in his opinion a proration or subdivision which depends upon special information taken outside of the period to which it is to be applied, and which is of a nature, as cannot be verified in its total, is not a proper basis for division, unless it is *is* shown that all the conditions are identical in both periods. In criticizing the result as shown by the company's exhibit 27-*a* he says:

"Had the percentages of difference of the sub-classifications, that is, the individual Interstate Commerce Reports, been worked out, and the percentages applied to these individual accounts, the equated figures for the four months ended December 31, 1917 would have differed from the equation as totaled by $7,397.80, the equation as individualized would have been less than is the equation of subtotals."

After this testimony of Mr. Simpson had been given, Mr. Hamilton, made the equation by the individual Interstate Commerce Commission Accounts as suggested by Mr. Simpson, and assumed the Company's material burden from the freight to the passenger side, and the result of this equation was that instead of assigning to Arkansas $7,397.80 less, as Mr. Simpson thought would by the
2314 case there would have been $8,400.38 more assigned to the State but in his opinion his exhibit 27-*a* is correct, and he was of the opinion that the traffic in Arkansas should not be charged with that additional sum. No rebuttal was offered by Mr. Simpson or any other witness as to that statement.

In the opinion of the Court, if correct factors are used, and the Court finds that they were, this method of equation will secure re-

sults as nearly correct as is possible, when no separate accounts of the cost of the two classes of traffic have been kept.

Mr. Hamilton, the witness who testified as to these matters, was in charge of that work with a large number of others employed by him, and he explained that to obtain this information the road in Arkansas was divided into divisions with a head clerk for each of them to supervise the others. These reports were then sent to Mr. Hamilton and his force tabulated them under his supervision, and from them the various exhibits which were introduced in evidence in this case were prepared. In order to make these exhibits correct an analysis was made of all the different items, so that they could be properly allocated according to the use made of them. The same methods were employed for the purpose of ascertaining the exact cost according to the use of locomotives, cars, coaches and everything in any wise connected with the transportation department. Apportionments of the passenger traffic were made by car foot miles as stated, their use being sub-divided between sleeping cars, day cars, baggage, dining, mail, business and other cars under their respective num-
2315 bers, and as to State and interstate passengers.

After these exhibits had been introduced on behalf of the company all the reports upon which they were bases, all the records kept by the company, and the work sheets which had been used by the statisticians in the preparation of the various summaries, as shown by the exhibits filed, were submitted to and examined by the accountants for the State, and the same course was pursued with the exhibits filed by the State, the work sheets and data being su-mitted to the accountants for the company. While some few errors were found in the exhibits of each they were corrected, or as stated by the accountants, "ironed out", and new exhibits filed by each side, which both parties agree are mathematically correct, but each criticizes the methods and bases employed by the other in preparing these final exhibits. The case was submitted on the corrected exhibits.

On behalf of the State, while attacking the formula used by the company as incorrect, no formulæ as to how the different apportionments should in their opinion, be made were presented, but all its exhibits are based upon the same formula used by the Company and the records of the company, but divided according to the methods its accountants considered proper, except that instead of separating the Arkansas business from that of the entire system the accountants for the State assumed that there was no difference in the cost of operation in the State of Arkansas from that in other States. Nor was any distinction made for the difference of cost between inter and intra-state business either in the State of Arkansas or any
2316 other part of the entire system. Why no such separation was made is not explained by any of the witnesses for the State.

The position of the learned counsel for the State, as stated by him in the argument, was that the burden to establish, by proper evidence, that the rates sought to be enjoined were noncompensatory to the extent of being confiscatory, was upon the company, and if it failed to adopt the right bases from which the Court can be clearly

convinced that the rates are confiscatory, relief must be denied to the Company.

When the hearing first began considerable evidence was introduced on the part of the company to establish the value of its road in the State of Arkansas, but later a stipulation was entered into between the parties agreeing that for the purposes of this case the average value per year of the property in the State of Arkansas for the years 1910, 1911, 1912 and 1913 was $17,924,441.75, the value fixed by the State Taxing Board, and that the gross ear-ings in the State for the four years had been $16,688,486.86, divided as follows:

| | Intrastate. | |
|---|---|---|
| Freight. | Passenger. | Total. |
| $1,045,182.50 | $1,634,913.09 | $2,680,095.59 |
| | Interstate. | |
| $10,150,834.01 | 2,990,732.40 | $13,141,566.41 |

In addition there was during that period earned from mail and express from both classes of traffic, intra and inter-state, $866,806.86, making the total $16,688,486.86. It was shown also by the undisputed evidence that these were normal years, and by dividing these items by the factor four the average total gross earnings in the State for one year amount to $4,172,121.71.

2317 As to the intrastate traffic it is shown by the evidence that during those years, the higher freight tariff adopted after the temporary injunction had been granted, and which is referred to by all the witnesses as the "Court Tariff," was charged, and a passenger rate of three cents per mile, instead of two cents established by the statute with the exception of the eighteen months above referred to, when only two and one half cents per mile was charged, while the interstate passenger rate was three cents per mile all the time. That by an exact computation, taken from the way-bills, freight charges and passenger reports, it appears that had the tariffs which were enjoined by the interlocutory injunction been charged the income from the intrastate business in the State would, during the four years' period, have been $456,103.72 less, divided as follows: Freight $20,389.53, Passenger, $435,714.19. Deducting this difference, it is claimed on the part of the Company that there was an actual loss on the intrastate business in the State of Arkansas for these four years of $122,651.26, or for each year $30,662.81; that upon the entire business in the State, freight and passenger, intra and interstate, the Company made a net profit on the stipulated valuation equal to 5.63%, which would have been slightly greater but for the loss in the intrastate business.

It is also shown by the evidence, and the Court so finds, that the months of November and December, 1913, were normal months for that road in the State of Arkansas, as reflective of the year's business. By this it is not meant that the earnings and expenses of these

months were exactly one sixth of the entire year, but that the relation between the different articles of traffic and expenses
2318 based on the traffic are substantially the same for the entire year, and this was verified, it is shown by the witness Hamilton, by comparing them with the last four months of 1907. It was shown also that although the traffic during those four months constituted a little over 36% of the entire year's business, the expense, as well as the use, were reflective of the entire year. The reason the months of November and December, 1913, were used for the purpose of making the test it is explained, was that until after the opinion in the Minnesota Rate Case had been announced, other bases had been used by the railroads, including this Company, which were disapproved by the Supreme Court in that case; that in order to obtain the facts to conform to the rules established by the Supreme Court's opinion in the rate cases reported in Volume 230 U. S. Reports, it was necessary to prepare a proper formula, which was done as heretofore explained, and also to prepare forms on which the necessary information was to be noted as ascertained; also to create the force necessary to obtain the data and record them on these forms in conformity with these instructions to the employees and thereby secure accurate information from which to prepare the statistics for the hearing of this cause under the new formula.

In this connection it is proper to state that in none of the Exhibits, the Company's nor the State's, is the year ended June 30th, 1909, included. The case of this omission is that for the purpose of equating, the reports of the Company made to the Arkansas Railroad Commission were used, and no such reports were re-
2319 quired to be made until the year ended June 30th, 1910. The statistics, as shown by the Exhibits filed by both sides in this cause, are for the years ended June 30th, 1910, 1911, 1912 and 1913.

The criticisms of the State of the formula used by the company are found in the testimony of Mr. L. S. Mayer and Mr. L. N. Simpson. Mr. Mayer is the Auditor of the Corporation Commission of the State of Oklahoma, in charge of the Division of Statistics and Accounts. His experience, as shown by the testimony, is that he worked as a section hand on the Burlington road during three months in the summer for a number of years; the third or fourth year he was promoted to the position of time-keeper on the section; he worked about six months each year for two years and then became a freight brakeman on the Iowa Central, remaining there about six months. He then worked in the machine shops of the Burlington road as a laborer and then a machine helper, and finally was employed in the office keeping time. He then was employed in the Chief Dispatcher's Office handling car distribution, and doing general clerical work in that office and that of the Superintendent. In June, 1908, he went to the Chicago and Alton road where he did similar work, and for a short time during the rush period was acting as Assistant Train Master at Springfield, Ill.; he was then connected with the maintenance of way and bridges department, and for the last three years has been Auditor of the Oklahoma Commission.

He is not a civil or mechanical engineer and has no experience in these fields. His experience is set out so fully here for the reason that his competency, as well as his impartiality as a witness, were seriously attacked by counsel for the Company.

2320 He was the only witness who testified as an expert on behalf of the State on the matters not connected with the accounting. His criticism is of the following bases used in the formula of the Company's Exhibit No. 1:

The engine ton miles which were used by the Company's accountants in determining the use of the road-bed for freight, because the engines are classed for potentiality, and but seldom carry as much of a load as is assigned to them by the classification. He also criticises the formula used for the passenger trains, which is not based on potentiality but on the car miles handled, as the number of cars frequently varies. He criticizes the theory which is used for the division of transportation expenses because he says it is cumulative and affects the division of the property injuriously, so far as the State is affected. The division of yard and station expenses between line and terminal is severely criticised by him. In his opinion the terminal should be on actual tons using the cars and not by throwing them in a pool. The same criticism he also applies to some of the station expenses and to wrecks. The division between line and terminal at division points is criticised, and also the division of the cost of maintenance and equipment. The test period made in November and December, 1913, is in his opinion, not indicative of the normal business for the year and therefore should not be considered as fair and proper.

As to the engine ton mile basis adopted by the Company, the Court is of the opinion that it is the best method that can

2321 be adopted to obtain results as accurately as in a matter of this nature is possible. While it is true that only when conditions are ideal that the freight hauled is 100% of the potentiality of the engine, the evidence shows that this ideal condition never prevails. It also appears from the evidence that if the load is light the train travels faster and thus correspondingly reduces the cost, and this applies especially to the through freight trains. Besides, by applying this basis to the entire traffic it can do no injustice to any of it. One of the elements of the greater cost of handling local freight than through, is the fact that it carries a much less proportion of the engine potentiality. The evidence shows that while local trains on this road in Arkansas only carry 67% of the engine potentiality, the through trains carry 90%, an item which adds to the greater cost of local freight trains.

Aside from this, the potentiality of the engines is very much affected by many other conditions, among them grades, trestles and bridges, cold weather, snow and rain. The evidence shows that this company has two main branches of road in the State of Arkansas, one running north and south in the western part of the State, and the other running east and west in the northern part of the State. In the former, the grades are considerable, which is a mountainous country, while the latter runs for a large part through

river bottoms, with many bridges and trestles, partly subject to overflow from the Mississippi and St. Francis Rivers, and during the rainy season is seriously affected as to the potentiality of the locomotive. But leaving these out of view, if Mr. Mayer's contention were sustained, it is shown by the evidence of Mr.
2322 Hamilton that calculations based upon actual investigations, show that if Mr. Mayer's views were adopted it would result in a loss to the intrastate traffic, as of the elements of expense charged to freight, the intrastate is only charged with four per cent, and that of passenger would be 30% *per cent.* Nor would the contention of Mr. Mayer that only 10% of the expense of maintaining track is caused by the use, and the other 90% by the elements, change the result to any extent, as the difference would only be a two per cent decrease of the charge to the freight and increase the same amount to the passenger. On the other hand, if the cost of maintenance of way is raised to 25% and that due to the elements reduced to 75%, as is claimed by some of the witnesses for the Company to be a proper division, the result would be practically the same as that on the basis adopted by the Company according to its formula.

That the passenger trains are not based on engine potentiality but car miles is clearly right, for the trains are made up to accom-odate that traffic and the expense should be regulated by the number of cars drawn, even if there are not sufficient passengers to fill every seat. The Company cannot provide the passengers, but must provide the cars.

The criticism of the apportionment of property values in the State between state and interstate on the relation of transportation expenses is that the raising of any item of expense in one class of service puts more property valuations on the State for intrastate business. But the same objection applies to all allocations of expense, for when the common factor is wrong the result is
2323 bound to be wrong also. The question, therefore, comes back to the main issue, are the Exhibits used by the Company based on correct or incorrect bases, upon the determination of which depends the claim of the Company that the rates sought to be enjoined are non-compensatory and confiscatory.

The criticism of Mr. Mayer of the division of yard and station expenses made by the formula of the Company is based on the fact that what is called terminal expense is only a part of it. He says that "under the formula used, all business passing through the junction from the branch line points is line, and all of the expense going to foreign roads or coming from it is terminal," thus causing, as he claims, the intrastate traffic to bear not only the expense of its own terminals but those of the interstate.

After Mr. Mayer had testified on that point the accountants for the Company made an investigation of the *affect* upon the results, if Mr. Mayer's plan had been followed. The investigation was made at Fayetteville, Ark., which is on the main line and also the terminus of two branches, and one of the largest stations of the Company in Arkansas, with the result that under Mr. Mayer's

formula intrastate traffic would have been charged with almost 100% more than it was under the Company's formula. This evidence is uncontradicted, and the figures charged on the work sheets, which were submitted to the accountants for the State, are conceded to be mathematically correct. The difference between the two contentions is that Mr. Mayer is of the opinion that every division point should be considered as a terminal in the
2324 sense of origin or delivery. On the other hand, the contention of the Company is, and their calculations are made on that theory, that such terminal service was an incident to the transportation from origin to destination, and had nothing to do with the receipt, handling, storing or delivery of the freight, which constituted terminal expenses.

In the opinion of the Court, the formula of the Company on that item is correct, that it is a haulage, and not a terminal charge. The error of Mr. Mayer, in the Court's opinion, is that he confounds the yard and station expenses with the terminal. In the one instance it is part of the haul, while the latter is that of receiving, storing and delivering.

The formula for the maintenance and cost of equipment is found on pages 9-*a* and 9-*b* of Exhibit 1 of the Company. This has also been sever-ly criticized by the State. The witnesses introduced by the company testified to the correctness of this formula. In addition to the Company's own employees it introduced Mr. W. E. Symons, whom the testimony shows to be a mechanical engineer of great experience and high reputation in connection with that branch of the railway service, not only in operating but designing cars and locomotives. The high standing of Mr. Symons is evidenced by the fact that in some few matters he criticized the formula prepared by the railroad managers, which was used as the basis of the Company's exhibits, and thereupon changes were made by them in accordance with his suggestions. For the last few years he has retired from active railroad service and acts as consulting engineer. He also acts frequently as arbitrator
2325 in cases of damages growing out of injuries to freight cars and locomotives on different lines. The confidence reposed in him is shown by his employment as consulting engineer by the leading roads of the country, to aid them in improving their equipment owing to his knowledge and experience from the thorough and minute investigations made by him of causes and results. Among his employments was that of securing information with respect to the actual expense of repairing locomotives, freight and passenger cars. It was claimed by Mr. Simson, who is an expert accountant, and stands high in his profession, that the bases adopted by the Company are wrong, and those found in an article by Mr. Berry should be adopted. Mr. Symons testified that in his opinion 80% of the expense of repairing freight cars is due to rough treatment, and only 20% to the use of the car under normal conditions as to use; that after allocating or subdividing each expense item between line and terminal, the result was the allocation of 75.7% to terminal and 24.3% to line; but having in mind certain dam-

ages done to cars in line work which he estimated at 10% he deducted that from the terminal, and added it to line, making the final figures 65% to terminal and 35 to line. He files as an exhibit a summary of division of freight car repairs between the line and terminal, based on an investigation of four lines, the Santa Fe, Rock Island, the M. K. & T., and this road, as confirming his conclusions. He also files as exhibits photographs of damaged cars, showing the damage done by rough treatment, and another exhibit showing how he subdivided the different parts of a car in making his investigations. Repairs to freight cars he assigns 35%
2326 to line and 65% to terminal. Repairs to passenger coaches he assigns 82.5% to line service and 17.5% to terminal. Locomotive repairs he assigns to local freight engines 60% to line and 40% to terminal; to through freight engines 68.4% to line and 31.6% to terminal; to local passenger engines 64% to line and 36% to terminal; through passenger engines 71% to line and 29% to terminal. Typical passenger trains 82.5% to line and 17.5% to terminal, including through and local trains.

In his testimony he stated in detail how his investigations were made, and his reasons for each subdivision. He filed itemized statements of the different parts of each item which he considered, and the reasons for his conclusions. The higher cost charged by him to terminal for locomotives than for cars he explained to be due to the fact that "the entire engine performs more work entering and leaving terminals than any other unit in the train, the application of the brakes being more destructive to the engine." On the part of the State, Mr. Simson, who frankly admitted that he is only an accountant, with no knowledge or experience of any kind in the management of operation of railroads, prepared his statements of these costs from the tables used by Mr. Berry in a paper prepared by him and read at a meeting of the American Railway Engineer and Maintenance of Way Association held in 1904 on the subject of "Reduction of Gradient and Elimination of distance curvature and rise and fall on the Union Pacific Railroad." Mr. Berry is very eminent in his profession as a civil engineer engaged in constructive work, but as he admits that he did not possess the necessary knowledge as a mechanical enginee-, he adopted the tables prepared by Mr. A. M. Wellington and Professor Webb (of neither of whom Mr. Simpson had ever heard) affecting operating expenses, and from these table- Mr. Simson assigns:

2327

| | Line. | Terminal. |
|---|---|---|
| For engine repairs | 58.48% | 41.52% |
| Passenger cars | 63.88% | 36.12% |
| Freight cars | 61.72% | 38.28% |

In making these figures Mr. Simson does not express any opinion as to whether the tables he used were correct or not, as he admits his lack of knowledge to form such an opinion. He finds that the Company's method is 24.5% in excess of terminal and a similar per cent too little for line expense. The tables used by Mr. Barry did not make any division between line and terminal, but Mr. Simpson,

taking the different items, allocated them between line and terminal as he assumed they should be, although he admits that he knew nothing of this matter. In his testimony he states:

"I found nothing in Mr. Berry's tables to guide me in making a line and terminal division in any of his subdivisions of cost of repairs. Mr. Berry had no line or terminal division in mind in his paper."

Coming back to Mr. Wellington's tables, Mr. Simson testified that "these tables were first published in 1877; that the data for them *was* secured from the Atlantic and Great Western Railway, which was first a broad gauge railroad and then was changed to standard gauge; that the freight cars then used were flimsy as compared with those of the present day and cost about Five Hundred Dollars. The equipment then in use. (freight cars, locomotives and coaches) has no application whatever to present day conditions." He further says: "An illustration: Mr. Wellington assigns a certain percentage of contributing causes to make up and starting out trains. It was

customary in those times for an engineer and fireman to
2328 get up in the morning and build a fire in the locomotive and while steam was raising they would get their breakfast; then they came back and switched out their trains, and after they had switched a long time they took their train and proceeded over the road. There are no such conditions now-a-days at all. There were very few yards in those days except the yards that were used by trains when they came in at the end of the run. Mr. Wellington's tables were based upon conditions that have so completely changed, both with reference to railway operation and with respect to the character of equipment and the business of handling it, that it would not be applicable at all, although the fundamental principles are good, and Mr. Wellington was one of the brainiest and ablest railway men the country ever produced. His book has a front place in my library and I prize it highly; his tables on equipment, however, are completely out of date. That road is now a part of the Erie Railway. In making an examination of the equipment and facilities for its maintenance of the Erie Railway in 1907, it was necessary for me to personally inspect every car, or some of each series of cars, on hand; among the cars carried on the Company's schedule of equipment were some of those old twenty-five ton box cars, originally the property of the Atlantic and Great Western. They were being used for boarding and camp cars. I recommended that they scrap all of them and write them off the books. They were good cars in their day, but there is no such equipment used now, and a distribution of contributing causes of repairs to equipment based upon cars or locomotives of that type,

and upon conditions of that period is not a good rule to at-
2329 tempt to copy now. Another very important feature was that in those times all cars had what was called a link and pin coupler, making it necessary for the breakman to go between the cars to where he made the coupling and they were handled very carefully compared to what they are now. Since the automatic coupler has come into use, and it is unnecessary for trainmen to go

between the cars, the destructive effect of such has gone up enormously. It did not obtain in those days. If it had the cars would not have been there for me to have seen them in 1907."

In view of Mr. Simson's testimony that the Wellington tables used by Mr. Berry furnished no data for making the division between line and terminal, and that he had no practical knowledge whatever on that subject; the further fact that conditions have so materially changed since Mr. Wellington prepared his tables that they are inapplicable to present day rolling stock of railways, and the testimony of Mr. Symons and that of the other witnesses who testified on that subject, Mr. Simson's calculations on that subject, as shown by his exhibits, are of no value whatever.

On the part of the State it is contended that the reduced passenger rate of two cents a mile would stimulate the traffic to such an extent that the intrastate business would be the gainer, or at least not the loser. For the interstate passenger business the Company charged three cents, and in order to ascertain what the effect on that claim is, a test was made for the month of August, 1913, which, it is claimed, shows that while it increased the intrastate business it did it at the expense of the interstate business. (The two cents' rate went into effect on this road in July, 1913.) In Order to
2330 get the exact factors, train auditors and collectors were, after the two cent rate was put in effect, put upon all trains crossing the borders of the State, with instructions to make a detailed check of all passengers who bought tickets or paid fares on the trains at the boundary stations of the State. These reports show that there was an abnormal increase in the purchase of tickets at these boundary stations. The records show the following increases at some of the boundary stations:

| | Total number of tickets sales and cash fares paid. |
|---|---|
| Osborne, Ark.: | |
| August, 1912 | 8 |
| June, 1913 | 12 |
| August, 1913 | 142 |
| Rogers, Ark.: | |
| August, 1912 | 2,532 |
| June, 1913 | 2,999 |
| August, 1913 | 4,321 |
| Arkinda, Ark.: | |
| August, 1912 | 176 |
| June, 1913 | 137 |
| August, 1913 | 935 |
| Mammoth Springs, Ark.: | |
| August, 1912 | 656 |
| June, 1913 | 349 |
| August, 1913 | 1,684 |

Yarbro, Ark.:

| | |
|---|---|
| August, 1912 | 577 |
| June, 1913 | 345 |
| August, 1913 | 810 |

Summers, Ark.:

| | |
|---|---|
| August, 1912 | 118 |
| June, 1913 | 91 |
| August, 1913 | 554 |

2331 In the interior Stations the increase was not so marked, still noticeable. In Jonesboro and Hoxie, Arkansas, the increase was 33%; in Ashdown, Ark., 31% and Wilson, Ark., 28%. That in these interior stations a very large part, if not all of this excess, is attributed to the fact that the State rate was only two cents, while the interstate rate was three cents per mile, is beyond question. Take Jonesboro as an illustration. That City is about midway between the Tennessee and Missouri borders. A great deal of its traffc is with Memphis, Tenn., which is separated from Arkansas by the Mississippi River. A person going from Jonesboro to Memphis, by purchasing a ticket to Bridge Junction on the border of the State, would pay two cents a mile and twenty-five cents for crossing the bridge at Memphis, but if he purchased a through ticket to Memphis, that being an interstate trip, he is charged with the rate filed and approved by the Interstate Commerce Commission, 31 I. C. C. 532 (where it was held that the three cents per mile interstate passenger rate in Arkansas was not unreasonable, although the intrastate rate was two cents per miles), three cents a mile to bridge junction and twenty-five cents for the bridge fare. The same thing would apply to those who went west to Missouri points. By purchasing a ticket to the last station in Arkansas, he would pay two cents; he would then pay the three cent rate to the first station in Missouri, which, under the Statutes of Arkansas can be paid on the train, without additional charge; then from the first station in Missouri to his destination he would again pay the two cents per mile prevailing in that State. The same conditions exist at Hoxie,
2332 which is a short distance west of Jonesboro, and no doubt at almost every station in the State, to some extent. As the western branch of this road crosses the state line a number of times, the affect is naturally considerable.

It is also shown that while the intrastate passenger business increased for the last six months in 1913, when the two cents' rate was in force, from 16.31% for the year ended June 30th 1913, to 19.06% the interstate decreased during that period from 47.67% to 39.89%. The evidence also shows that for the year ended June 30th, 1910, while the two and one half cent rate was in force, the receipts from passenger traffic were: Intrastate $362,485.87 and interstate $661,500.07. For the year ended June 30th, 1913, when the three cents rate was in effect, the receipts from passenger traffic were: Intrastate: $415,183.99 and interstate $775,599.41. Had the three cents' rate for intrastate traffic been in force in 1910 the receipts from that

traffic would have been $434,983.94, or $19,799.05 more than for 1913, while the interstate passenger traffic for 1913 shows an increase of $114,099.34.

From the evidence the Court finds as a fact that the two cents' rate does not stimulate passenger traffic, except at the expense of the interstate. People are not in the habit of travelling merely because rates are lower. It is probably different when special reduced rates are made for certain occasions, but in such cases it is the special occasion which causes it.

There is also a criticism of the method by which the terminal expenses are charged by the Company. The accountants for the company made the cost of terminal for each ton of freight 36.486 cents and for passenger 8.677 cents, which is shown by the State's accountants to be erroneous and admitted by the Company's accountants, if the division of expenses is based upon tons and passengers. The corrected figures on that basis should be 31.319 cents per ton of freight, and 5.443 cents per passenger. What the actual terminal expenses in Arkansas are is undisputed, both accountants using the same figures, but differing in the method of division. The company arrived at its figures on the basis of time devoted by its employees in stations, yards and train service, regardless of the number of tons or passengers hauled while the State used the latter factors. But in results there is no difference. Mr. Simson, the State's Accountant, who prepared these tables, testified on direct examination:

2333

"The difference cuts no figure in this matter. There is no stress upon that. It is just brought out in the accuracy of the matter." And again on cross-examination on this subject he testified: "The result of these errors is that in the intrastate revenues the assignment of passenger and freight revenue to Arkansas is not affected, but in the interstate revenues the mileage allowance is excessive by eleven miles on each ton, and a like excess of two and one half miles for each passenger. * * * The thirty-one cents' allowance on freight and the five cents' allowance on passenger are merely computed from the basing data that the Company used, to show the error of the method. In other words, the thirty-one cents is not intended to be considered as a correct terminal allowance of revenue, but was merely computed to illustrate the correctness of the method."

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Again, in reply to the question: "If you based that (referring to the allowance of the terminal being excessive) upon the proposition that the application of that to the tariff units of the entire system would it exceed the total expenses of the road?" he replied, "That would depend upon the accuracy of the company's statistician as to the freight and passenger, and freight one mile and passenger mile, but we see no reason to question that. Q. Assuming they are correct, then that is your opinion? A. Yes, sir. Q. What effect do these changes have in the interstate revenue, as illustrated by the examination you have given, upon the intrastate revenues in Arkansas? A. None whatever. Q. Don't you know that the passenger and tons were not used (by the Company) in any way to divide between line

and terminal? A. Apparently this exhibit (referring to Exhibit 6 of the Company) so shows. Q. And do not the exhibits based on the Exhibit 1 also show that? A. I presume so. I have not examined them for that particular point and I don't remember. Q. Assuming they do, were the passenger and tons used in dividing between line and terminal? A. I think not. Q. Would not the reconstructive costs of ascertaining under your method exceed the actual cost if it costs more to earn a dollar in the State of Arkansas than on the entire line as a matter of actual fact? A. It would."

It therefore appears from the testimony of the accountants for both sides that this difference in the terminal figures has no relation whatever to the ultimate correctness of the Company's Exhibits or to the equating proportions used by the Company to give effect to its new formula, so far as the State is affected, while Mr. Simson's formula would result in increasing the Company's showing of cost charged to the intrastate business in Arkansas.

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To review all the evidence, which is quite voluminous, would serve no useful purpose. In fact, the Court has set out more of the testimony than is necessary in this case. The Court had the benefit of the able argument of counsel, which lasted almost two weeks; they were taken down stenographically and furnished to the Court in typewritten form; the evidence was reduced to writing in splendid form, and an index of every subject furnished the Court. The testimony as well as the argument have, after arranging them on each subject, been read and re-read with the greatest care, and every part of it, although not referred to herein, carefully considered, and the conclusion reached that the formula used by the Company in the presentation of this case, allocating the cost of inter and intrastate freight and passenger business of the road in the State of Arkansas according to its use, enabled it to determine the facts as near correctly as a matter of this kind can be. Upon the whole evidence the Court finds, omitting for the present the earnings from mail and express, but adding that item later, the average annual income and expenses of Company's intrastate business in the State to be:

| | Freight. | Passenger. | Total. |
|---|---|---|---|
| Operating Revenue..... | $261,295.63 | $408,728.28 | $670,023.91 |
| Operating Expenses..... | 268,983.42 | 317,677.36 | 586,660.78 |
| Total net earnings..... | | | $83,363.13 |

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The average net earnings from mail and express for a year for the entire busines- in the State, intra- and interstate, are $21,075.97; apportioning them to the intrastate business in the State upon the same basis the other net earnings were applied, they add to the intrastate net income $5,910.98, making a total of $89,274.02, as the annual net earnings from intrastate traffic in the State, while charging three cents a mile for passengers, except during the eighteen months when two and one half cents per mile was charged, and the higher rate under the so called "Court Tariff."

By adopting the four years' period for averaging the earnings and

expenses we are able to get a fairer result than by merely selecting one year, which may be affected by peculiar conditions then prevailing. A four years' period, when the years are fairly normal will reflect more accurately the traffic and cost.

The evidence based upon an actual investigation of records, conductors' reports, and waybills, all the passenger and freight earnings from intrastate business, without making any allowance for the two and one-half cents' passenger rate which was used during eighteen months shows the average earnings per year from the intrastate traffic would be $114,025.93 less if the rates in controversy had been charged. Deducting this sum from the net intrastate earnings leaves a deficit on intrastate earnings of $24,751.91.

It is also proper to call attention to the fact that it appears from the evidence that in ascertaining the effect of the two cents' rate it was applied to all passengers, no deductions being made for
2337 children, who paid half fare, nor for the lower rates charged to meet competitive conditions from other roads which have a shorter line to some of the stations of this Company, the well recognized rule being that the shortest mileage between two points establishes the rates for all competitive lines. This is therefore more favorable to the intrastate than the real facts warrant.

What the effect of the two and one half cents' rate during the eighteen months was has not been shown by any of the testimony or exhibits, but it is shown that for that part of the year 1913, when the two cents' rate was in effect the difference between the revenue earned from intrastate business in Arkansas, and what would have been earned if the three cents' rate and the Court tariff had been in force would have amounted for a year to $140,264.55, or $26,238.62 more per year than for the average of the four years which *it* used by the Court in this case. But, in view of the results reached it is immaterial to consider this difference.

Nor would the percentage of earnings in the State from intrastate as well as interstate business, if applied to the intrastate, show a result which would enable the company to earn a reasonable return on its investment, which, in the opinion of the Court, for the reasons stated in its opinion in the former Arkansas Rate cases, 187 Fed. 290, 348, should be 7.5% in normal years. The net earnings from all sources in the State, state and interstate, for the average period, are found to be 5.63% per annum. This leaves out of consideration the difference in cost between intra and interstate business, which certainly amounts to something for reasons which require but
2338 little discussion—the short haul, the more frequent stops, the addit-onal terminal expense, all add to the expense of the intrastate. But assuming the same percentage of cost for both classes of traffic, intra and interstate, there must still be a deduction for the diminution in the revenue of the intrastate, which would have resulted, if the rates sought to be enjoined had been in force. Taking these into consideration the result will be, including the mail and express earnings, as follows:

The net average annual earnings in the State of Arkansas from all sources were $1,122,463.21; the agreed valuation of the road in

the State is $17,924,441.00. (These figures are the result of the four years,' 1910, 1911, 1912 and 1913 average.) This would make a net profit on all the business in the State of 6.26%.

| | |
|---|---|
| Adopting the same basis for the intrastate would make the profit on the valuation of the road assigned to intrastate business | $198,249.25 |
| Deducting the decrease which would have resulted if the enjoined rates had been charged | 114,026.93 |
| Leaves a net profit from intrastate traffic of | 84,223.32 |

which is equivalent to 2.65% on the valuation of $3,166,921.00, the value of the road in the State allocated to the intrastate traffic according to its use.

Nor would the result differ materially if we accept the figures of the State's accountants and apply them to the intrastate business of Arkansas, although they are made on the basis of the net earnings of the entire system, an assumption without any basis to support it. The system traverses six states in addition to the State of Arkansas, Kansas, Missouri, Oklahoma, Tennessee, Alabama and
2339 Illinois; the mileage of the entire system is 4,746.32 miles, of which only 597.5 miles are in Arkansas, a slight fraction less than 12.58%. The evidence shows that conditions in Arkansas differ very materially from some of the other States. Not only is there a difference in grades, bridges, embankments and topographical conditions which add materially to the cost of operation, but there is a great difference in the density of traffic, which is an important factor in the cost of operation of trains. The density of traffic on the entire system, as shown for the year 1913, is 663,000 ton miles against 554,000 ton miles on the freight side, and 97,000 against 75,000 passenger miles on the passenger side in Arkansas. On the line of the system of this Company between Kansas City, Mo., and Ft. Scott, Kans., the density is over 3,000,000 tons to the mile, and the average of the entire system is materially reduced by reason of the less density in the States of Arkansas and Oklahoma. On that part of the road a train hauling 3,000 to 4,000 tons make the same speed as a train in Arkansas hauling 600 tons, and the wages of the train crew are practically the same in each. While density of traffic does not affect revenue per ton mile, it gives greater revenue per mile of road. Nor does it make any allowance for the shorter hauls in Arkansas than on the entire system. The undisputed evidence shows that the average haul of all freight in Arkansas, as shown by the reports to the Arkansas Railroad Commission for 1913, was 75;85 miles, and on the entire system 166.21 miles. The average passenger haul in this State is 23.66 miles and for the system 43.65 miles. For the four months ending December 31st, 1907, the ton miles hauled in Arkansas was a fraction over 89% and pas-
2340 senger 81% as compared to the entire system. In 1913 the difference was 19% on freight and 30% on passenger. This includes inter- trans- and intrastate traffic. As the intrastate haul in Arkansas of freight as well as passenger is much shorter than the

inter and trans-state, the difference in its costs is, of course, still greater. How this traffic density affects the cost of fuel and wages, the two biggest items of the cost of transportation is shown by the Company's exhibit 55.

Now allowance is made for the extra cost of intra-state, although the Company's claim, as heretofore stated, is that it is considerably more. That it must be more requires no expert's testimony. The more frequent stops and starts, causing damage to the engines and cars; the fact that the local trains have to do their own switching at all intermediate stations, causing a loss of time, for which compensation is made to the train crew; the receipt and delivery of freight in smaller lots, which one of the witnesses for the company illustrates by saying: "If one ton of freight is hauled at one station, and five tons at another, the difference is cost is negligible, but when divided between the entire tonnage and mileage, adds considerable to the loss. The time taken to load and unload five tons will — nothing like five times as much as receiving or unloading one ton." Many other matters are shown by the evidence, and hereinbefore mentioned, contribute to the additional cost of local trains as compared to the through, which only receive and deliver freight at terminals in large quantities, with switch engines to do the switching. Still, Mr. Simson makes no allowance for them whatever.

2341 How seriously the shorter haul affects terminal expenses is shown by an illustration made by Mr. Nay, when he says: "If the terminal expense is thirty cents per ton on a haul of thirty miles, it will make one cent a ton for every mile, while if the haul is sixty miles it will only amount to one half cent a mile."

This also applies to yard expenses, which are affected by the tonnage hauled, depending to a great extent on the density of traffic. How these expenses vary in different yards is shown by the evidence. The cost in the yards at Fayetteville and Jonesboro were carefully investigated, and it was found that while the rough cost of handling each car at Fayetteville is 14.5 cents, at Jonesboro it is 35 cents, while on the entire system it is 23.2 cents for a five years' period. Only by ascertaining the actual cost or expenses of each yard in the State can the exact cost in the State be found, and this was ascertained by the Company during the two months' test period.

The cost of maintenance of way and structures in Arkansas as shown by the uncontradicted proof to have been, for the four months ending December 31st, 1907, $463.00 per miles and on the whole system $377.00 and practically the same proportion is found for the years 1908, 1910, 1911, 1912 and 1913, the greater cost in Arkansas being caused by the difference in climatic conditions and typographical conditions, some of the system being operated over a level country without grades, while in Arkansas a large part of it is over river bottoms, and another part in a mountainous section. This is shown by Exhibit 52 of the Company.

2342 The calculations made by Mr. Simson in his Exhibits K1 and Z1 are based only on the last four months of five years on the entire system, while the valuation is that based on the year 1907,

the lowest of any year and far below the average. By this method he reduces the percentage of traffic for these periods from 36.98%, which it actually was, to 36.34% which it was not in fact. Exhibit O of Mr. Simson is based on a formula spoken of as Mr. Douglass', discarded in this case because found to be erroneous by Mr. Simson and admitted to be so by the Company's accountants. His Exhibit J1 shows the net earnings based on the four last months of 1907 to be 6.62%. Exhibit M1, which is based solely on the last four months for the years ended June 30th, 1908, 1910, 1911, 1912 and 1913, shows an average profit of 6.89%, or an average of the two exhibits of 6.75%. In these exhibits, as in all others of Mr. Simson's, no allowance is made, as stated before, for difference in cost, taxes, density of traffic, shorter hauls shown to exist in Arkansas when compared with the entire system, nor any difference in cost between state and interstate, but the road in Arkansas is treated as part of the entire system, and the assumption acted on that the cost is the same on every part of the system, and also for intra- and interstate business, an assumption wholly unwarranted and opposed to all the evidence in the case.

Nor does he make any allowance for decreased earnings, which would have resulted from the State's rates, sought to be enjoined by this action. But adopting his conclusions that the profit of 6.75% should be applied to the value of the road in the State of Ar-
2343 kansas, it would show for the intrastate business net earnings $213,767.16; deducting from this the loss of earnings, if the lower rates which were enjoined had been charged and which should be deducted, $114,025.93 a year, there is left a net profit from all sources, according to his calculations, the sum of $99,741.23 from intrastate traffic, which would make a small fraction over 3% on the investment assigned to intrastate traffic, $3,166,921.00.

Nor do exhibits "AA" and "BB" of the State, which show, the former 7.69% and the latter 8% net profit on the valuations, make any distinction in cost between State and interstate, nor allow for the decrease in earnings which would have resulted from the rates in controversy. But even on that basis, deducting from the intrastate the difference between what was earned and what would have been earned under the lower rates, leaves as a net profit in the intrastate business less then 4%.

The valuations of the road in Arkansas in all calculations made by the Court are those agreed on by the State and the Company, and are 27% less than was claimed by the Company, as shown by the evidence of its chief engineer, before the stipulation as to value was made. The reduced valuation was the basis of the Exhibits of both parties, as amended, and which were used as evidence at the hearing and in this opinion.

Mr. Simson found an error in the assignment of expenses to Arkansas made by the Company for the four months ended December 31st, 1907, amounting to $23,080.62 for that period. This was caused by the old formula (Douglas' formula) wherein there had been erroneously assigned for the year 1907 $72,107.48 earn-
2344 ings to Tennessee, which should have been assigned to Arkansas. The error is admitted, but it only applied to the fo-r

months' period of 1907, which is not included in the four years' period used by the Court in its calculations, and therefore does not affect them. The learned counsel for the State, in the argument, stated that the Court's attention is called to it, not on account of its effect on the result, but to show the error of trying to take one period and transpose it to another.

Claims of other errors in the Company's statistics have been carefully considered by the Court, but found to be not sustained by the evidence, or so insignificant in amount that they could not affect the final result to the extent of 1/100 of 1%.

A matter of surprise to the Court in this case is the fact that the only charge for depreciation made by the company is one-fourth of one per cent a year on locomotives and rolling stock, and nothing whatever for depreciation of the embankments, ties, rails, bridges, stations, platforms and property other than locomotives and rolling stock. In the Court's opinion this one-fourth of one per cent a year allowed for depreciation of rolling stock is wholly insufficient, as it would indicate that the life of the rolling stock *to* be four hundred years, certainly too small, no matter how well kept. But there being no proof of any depreciation except this one-fourth of one per cent, none other has been allowed or considered by the Court.

In view of the conclusions reached by the Court and what was decided in the Minnesota Rate Case, in relation to the Minneapolis and St. Louis R. R. Co. (230 U. S. 469 to 473) and Norfolk
2345 and Western Ry. Co. vs. Conley, 236 U. S. —, it is unnecessary to make any other special findings than those made, or to devide between freight and passenger traffic, as the Court finds that the rates enjoined yield no profit whatever on the intrastate business, but, on the contrary, show a loss.

As no claim was made for the State, and no evidence whatever introduced to show that the road was not properly and economically managed, or that it was not built to meet a public demand, or what may properly be called a public necessity, the Court has assumed that there was no ground for such claims, as otherwise they would have been charged by the able counsel for the State, and evidence to sustain them introduced.

The plaintiff is entitled to a decree making the temporary injunction perpetual.

As conditions may change in the future, which would justify the State to put in force the rates now enjoined, the Court will retain jurisdiction of the cause, so that the State may apply for further orders to meet the changed conditions if desired.

Endorsed: Filed April 10th, 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

2346 And on June 15th, 1915, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, &c.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

On petition of counsel for both parties, it is ordered by the Court that the record on appeal in this cause be reproduced in the exact words of the following witnesses: Frank Nay, T. A. Hamilton, W. A. Symons, J. E. Frates, L. S. Mayer and L. N. Simpson. This order is made, as in the opinion of the Court, a reduction of their testimony to nar-ative form would not present the facts accurately.

(Signed) JACOB TRIEBER, *Judge.*

Which Petition of Counsel is as follows:

In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, etc., Complainant,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY and J. SAM Rowland et al., Railroad Commissioners of the State of Arkansas, Defendants.

Come J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners, the appellants herein, and pray the Court that the record on appeal in this case shall be repro-
2347 duced in the exact words of the following witnesses: Frank Nay, T. A. Hamilton, W. A. Symons, J. E. Frates, L. N. Simpson and L. S. Mayer.

The appellants state that the full force and effect of the testimony of said witnesses cannot be appreciated if it is reduced to nar-ative form and that it should be reproduced in the exact words of said witnesses.

The appellants further state that in compliance with Rule 75, that they will reduce to nar-ative form the testimony of the following witnesses: F. G. Jonah, Daniel Bonticue and W. H. V. Rosing; that the witnesses herein named are all the witnesses who were introduced in this case.

(Signed) JOSEPH M. HILL,
*Solicitor for Arkansas Railroad Commission.*

I, John M. Moore, Solicitor for the appellees in the above entitled cause, join in the above petition and pray the Court that an order be entered directing that the testimony of Frank Nay, T. A. Hamilton,

W. A. Symons, J. E. Frates, L. N. Simpson and L. S. Mayer be reproduced in the exact words of the witnesses.

(Signed) JOHN M. MOORE,
*Solicitor for the Appellees.*

Endorsed: Filed June 15th, 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

2348 And on June 26th, 1915, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, &c.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

The Court being now well and sufficiently advised as to the awarding of costs in this cause, it is ordered, adjudged and decreed that plaintiff do have and recover of and from William F. McKnight, J. Sam Rowland and Thomas E. Wood, Railroad Commissioners of the State of Arkansas all his costs herein expended. But no execution shall issue therefor until after the adjournment of the General Assembly of the State of Arkansas, which meets in the year 1917.

(Signed) JACOB TRIEBER, *Judge.*

And on July 1st, 1915, the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, &c.,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

On this day come all parties by their respective solicitors, and it appearing to the Court that W. W. Dickinson and T. H. Bunch, defendants herein, have been invited to join in the prayer for appeal herein, and have declined to do so, it is by the consent of the said W. W. Dickinson and T. H. Bunch, and by consent of all
2349 parties to this cause, ordered that the said W. W. Dickinson and T. H. Bunch be severed from the cause and from the appeal, and that the defendants, Railroad Commissioners, be and are hereby authorized to appeal this cause as if all parties to the record were joining therein.

(Signed) JACOB TRIEBER, *Judge.*

And on the same day the following proceedings were had, towit:—

No. 1638.

SIDNEY E. BOYLE, as Executrix of the Estate of Wilbut F. Boyle, Deceased,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, J. SAM Rowland, William F. McKnight, and Thomas E. Wood, Railroad Commissioners of the State of Arkansas.

Now on this 1st day of July, 1915, the defendants, J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners, file herein their Assignment of Errors and Petition for Appeal to the Supreme Court of the United States from the final decree herein, also presented bond in the sum of Five Hundred Dollars, conditioned as required by law with good and approved security.

It is ordered by the Court that the Petition for Appeal, Assignment of Errors and Bond be made a part of the record and appeal be allowed and bond approved, and it is ordered that a certified transcript of the record and the proceedings herein be transmitted to the Supreme Court of the United States; and it further being made to appear to the Court that the Clerk of this Court will be unable,
2350 owing to the size of the record to prepare a transcript within thirty days from the date of the signing of the Citation, it is therefore ordered that the time for filing the transcript with the Clerk of the Supreme Court of the United States be enlarged until the first day of October, A. D. 1915.

Dated this 1st day of July, A. D. 1915.

(Signed) JACOB TRIEBER, *Judge.*

Which Assignment of Errors is as follows:

In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, as Executrix of the Estate of Wilbur F. Boyle, Deceased, Complainant,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, WILLIAM F. McKnight, J. Sam Rowland, and Thomas E. Wood, Railroad Commissioners of the State of Arkansas; W. W. Dickinson and T. H. Bunch, Defendants.

*Assignment of Errors.*

Now come J. Sam Rowland, William F. McKnight and Thomas E. Wood, constituting the Railroad Commission of the State of Arkansas, defendants in the above entitled cause, and aver that in the record and proceedings herein there has been manifest errors committed in this, to-wit:

1. The Court erred in granting a perpetual injunction against the

Railroad Commission, and all other persons, from enforcing
2351 Standard Freight Distance Tariff No. 3 and amendments thereto adopted prior to the institution of this action prescribing rates for the transportation of classes and commodities, and from enforcing an Act of the General Assembly of the State of Arkansas, approved February 9th, 1907, entitled "An Act to Amend Section 6611 of Kirby's Digest of the Statutes of Arkansas by Fixing Passenger Rates in this State and for Other Purposes."

2. The Court erred in not dismissing the plaintiff's bill because plaintiff failed to establish by clear and decisive evidence that the intrastate freight and passenger rates sought to be injoined were confiscatory.

3. The Court erred in not dismissing the plaintiff's bill of complaint because the plaintiff failed to overcome the presumption that the freight rates established by the Railroad Commission and the passenger rates established by the General Assembly were reasonable and compensatory.

4. The Court erred in not dismissing the bill of plaintiff because the preponderance of the testimony established the fact that the freight and passenger rates sought to be enjoined were compensatory and earning the plaintiff a fair return on its property.

5. The Court erred in finding that the Formula, Exhibit No. 1, introduced by the plaintiff, fairly separated the expenses between intrastate and interstate traffic.

6. The Court erred in finding that the Formula, Exhibit No. 1, fairly apportioned the property between intrastate and interstate business.

7. The Court erred in adopting the plaintiff's basis for apportioning the expenses between intrastate and interstate traffic.

8. The Court erred in adopting the plaintiff's basis for ap-
2352 portioning the revenue between intrastate and interstate traffic.

9. The Court erred in the apportionment of the property to intrastate traffic.

10. The Court erred in retaining jurisdiction of this cause for any other purpose than to permit these defendants to show a changed condition which might relieve them of the injunction.

11. The Court erred in decreeing that these defendants pay any part of the cost.

12. The Court erred in decreeing that any provision of Standard Freight Distance Tariff No. 3 be enjoined.

13. The Court erred in not requiring the plaintiff, or the defendant Railroad Company, to give bond to refund the difference in the enjoined rates and those charged by it pending the hearing of the appeal herein.

Wherefore for the errors aforesaid, and each and every of them, and many more apparent on the face of the record, the defendants, J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners of Arkansas, pray the reversal of the decree aforesaid, and that the Court be directed to enter a decree dismissing

plaintiff's bill of complaint and such other relief as equity and good conscience will show these defendants entitled to receive.

(Signed) JOS. M. HILL,
*Solicitor for Defendant Railroad Commission.*

Endorsed: Filed July 1st, 1915. Sid. B. Redding, Clerk, by W. P. Feild, Jr., D. C.

2353 Which Petition for Appeal is as follows:

In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, as Executrix of the Estate of Wilbur F. Boyle, Deceased, Complainant,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, J. SAM ROWLAND, WILLIAM F. MCKNIGHT, and THOMAS E. WOOD, Railroad Commissioners of the State of Arkansas; W. W. DICKINSON and T. H. BUNCH, Defendants.

*Petition for Appeal.*

Now comes J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners of the State of Arkansas, defendants in the above entitled cause, and conceiving themselves to be aggrieved by the decision herein rendered on the 10th day of April, 1915, wherein the Court made perpetual the temporary injunction herein before issued and found, adiudged and decreed that the freight rates embraced in Standard Freight Distance Tariff No. 3 and intrastate passenger rates enacted by an Act of the General Assembly of Arkansas in 1907 were confiscatory and to keep the same in force was taking the property of the plaintiff without due process of law; and further aggrieved by the decree of the 29th day of June, 1915, as to the costs in said suit, and pray an appeal from the said final decree of the District Court of the United States for the reasons specified in the Assignment of Errors which is filed here-
2354 with, and prays that this appeal be allowed and the transcript of the record, proceedings and papers upon which said decree was made duly authenticated be sent to the Supreme Court of the United States.

Dated this 25th day of June, 1915.

(Signed) JOS. M. HILL,
*Solicitor for Defendant Railroad Commission.*

The petition for appeal is hereby allowed upon execution of a bond in the sum of Five Hundred Dollars, this 1st day of July, 1915.

(Signed) JACOB TRIEBER, *Judge.*

Endorsed: Filed July 1st, 1915. Sid. B. Redding, Clerk, by W. P. Feild, Jr., D. C.

Which Appeal Bond is as follows:

In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, as Executrix of the Estate of Wilbur F. Boyle, Deceased, Complainant,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, J. SAM ROWLAND, WILLIAM F. MCKNIGHT, and THOMAS E. WOOD, Railroad Commissioners of the State of Arkansas; W. W. DICKINSON, and T. H. BUNCH.

*Bond for Appeal.*

2355 Know all men by these presents, that we J. Sam Rowland, William F. McKnight and Thomas E. Wood, as principals and Earle W. Hodges, as surety, are held and firmly bound unto the plaintiff, Sidney E. Boyle, as Executrix and St. Louis and San Francisco Railroad Company in the sum of Five Hundred Dollars ($500.00) to be paid to the said Sidney E. Boyle, Executrix, and St. Louis and San Francisco Railroad Company, its successors, or assigns, to which payment well and truly to be made, we bind ourselves, our heirs, executors and administrators, jointly and severally, by these presents.

The obligation is upon this condition: Whereas, the above named J. Sam Rowland, William F. McKnight and Thomas E. Wood, have prosecuted their appeal to the Supreme Court of the United States to reverse the decree rendered in the above entitled cause by the District Court of the United States for the Eastern District of Arkansas, Western Division thereof:

Now, if the said above named J. Sam Rowland, William F. McKnight and Thomas E. Wood, shall prosecute their appeal to effect and answer all costs, if they shall fail to make good their plea, then this obligation to be void, otherwise to remain in full force and virtue.

Given — our hands and seals this 1st day of July, 1915.

(Signed) J. SAM ROWLAND. [SEAL.]
W. F. McKNIGHT. [SEAL.]
T. E. WOOD. [SEAL.]
EARLE W. HODGES. [SEAL.]

Approved:
JACOB TRIEBER, *Judge.*

Endorsed: Filed July 1st, 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr. D. C.

2356 And on the same day the following proceedings were had, to-wit:

No. 1638.

SIDNEY E. BOYLE, &c.,

**vs.**

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al.

Come the Railroad Commissioners of the State of Arkansas, by Joseph M. Hill, Esq., their solicitor, and file herein their Citation, with service of the same duly acknowledged and waived by J. M. Moore, solicitor for plaintiff; and said Railroad Commissioners also file herein their præcipe for transcript, and notice of election to have the Clerk of this Court prepare the transcript on appeal.

Which Citation is as follows:

2357 In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, as Administrator of the Estate of Wilbur F. Boyle, Deceased,

**vs.**

ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, WILLIAM F. McKnight, J. Sam Rowland, and Thos. E. Wood, Railroad Commissioner-; W. W. Dickinson, and T. H. Bunch, Defendants.

*Citation.*

The President of the United States to Sidney E. Boyle, as Administrator of the Estate of Wilbur F. Boyle, Deceased, and The St. Louis & San Francisco Railroad Company, Greeting:

You are hereby cited and admonished to be and appear at the Supreme Court of the United States at the City of Washington within thirty days from the date of this writ pursuant to an appeal duly approved by the District Court of the United States, for the Eastern District of Arkansas, Western Division thereof, and filed in the Clerk's office of said Court on the 10" day of April, 1915, in a cause wherein J. Sam Rowland, William F. McKnight, and Thomas E. Wood, Railroad Commissioners of the State of Arkansas, are the Appellants, and you are the Appellees, to show cause, if any, why the decree rendered against the Appellants as in said appeal mentioned should be not corrected, and why speedy justice should not be done in their behalf.

Witness the Honorable Jacob Trieber, District Judge, presiding in said court this first day of July, 1915.

[The Seal of the District Court, Western Division of East Dist. Ark., U. S. A.]

JACOB TRIEBER,
*District Judge.*

Service of the above Citation this day acknowledge- and waived.

J. M. MOORE,
*Solicitors for Plaintiffs, Sidney E. Boyle, as Administrator, and St. Louis & San Francisco Railroad Company.*

Endorsed: Filed July 1st. 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr. D. C.

2358 In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, as Executrix of the Estate of Wilbur F. Boyle, Deceased, Complainant,

vs.

ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, J. SAM ROWLAND, WILLIAM F. MCKNIGHT, and THOMAS E. WOOD, as Railroad Commissioners of the State of Arkansas; W. W. Dickinson, and T. H. Bunch, Defendants.

*Præcipe for Record.*

Come the Appellants, J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners, and hereby indicate the portion of the record to be incorporated into the transcript on appeal in this cause. The said record to be all of the testimony of the witnesses, to-wit: F. G. Jonah, W. H.V. Rosing, Daniel Bonticue, (which is reduced to nar-ative form) Frank Nay, T. A. Hamilton, W. E. Symons, J. E. Frates, L. S. Mayer and L. N. Simpson, (the testimony of said witnesses, as heretofore ordered by the Court, to be reproduced in their exact words) and all exhibits filed herein as part of the testimony of witnesses, except the exhibits to the testimony of the witness Jonah (as said exhibit relating to the valuation which was later covered by stipulation) and the original exhibits for which substituted exhibits were introduced, in which event the substituted exhibits indicated by letter or number, shall be inserted in
2359 lieu of the original exhibits; that the pleadings and stipulations on file made in the course of the proceedings shall be copies, but the affidavits accompanying the preliminary injunction and the proceedings relating to the preliminary injunction shall not be copies.

(Signed) JOSEPH M. HILL,
*Solicitor for Defendant Railroad Commission.*

Service of this Præcipe is acknowledged this 1st day of July, 1915.

(Signed) J. M. MOORE,
*Solicitor for Appellees.*

Endorsed: Filed July 1st. 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr. D. C.

Which Election to have Clerk prepare transcript on appeal is as follows:

In the District Court of the United States for the Western Division of the Eastern District of Arkansas.

SIDNEY E. BOYLE, etc., Plaintiff,
vs.
ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY et al., Defendants.

Come the defendants, Railroad Commissioners of the State of Arkansas, by their solicitor, Joseph M. Hill, and elect to have the Clerk of this Court prepare the transcript of record in this
2360 cause and forward the same to the Clerk of the Supreme Court of the United States to be there printed under his supervision and the Rules of said Court.

(Signed) JOS. M. HILL,
*Solicitor for Defendant Railroad Commission.*

Endorsed: Filed July 1st, 1915. Sid. B. Redding, Clerk. By W. P. Feild, Jr., D. C.

2361 UNITED STATES OF AMERICA,
*Eastern District of Arkansas, Western Division:*

I, Sid B. Redding, Clerk of the District Court of the United States for the Eastern District of Arkansas, in the Eighth Circuit, hereby certify that the foregoing writings pages 1 to 2360, both inclusive, volumns one to eight, both inclusive annexed to this certificate are true, correct and compared copies of the originals remaining of record in my office, at Little Rock, Arkansas, of the Assignment of Errors, record and all proceedings in the case of Sidney E. Boyle, as Administrator of the Estate of Wilbur F. Boyle, deceased, against St. Louis & San Francisco Railroad Company, J. Sam Rowland, William F. McKnight and Thomas E. Wood, as Railroad Commissioners of the State of Arkansas, et al., as per the præcipe on file and of record in my office.

In witness whereof, I have hereunto set my hand and the seal of said Court, this 25th day of September in the year of our Lord, One Thousand Nine Hundred and Fifteen and of the Independence of the United States of America, the One Hundred and Fortieth.

[The Seal of the District Court of East. Dist. Ark., Western Division, U. S. A.]

Attest:

SID B. REDDING, *Clerk.*

[United States internal revenue documentary stamp, series of 1914, ten cents, canceled 9/25/15. S. B. R.]

2362 In the Supreme Court of the United States.

No. 648.

J. SAM ROWLAND, WILLIAM F. MCKNIGHT, and THOMAS E. WOOD, Railroad Commissioners of the State of Arkansas, Appellants,
vs.
SIDNEY E. BOYLE and ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, Appellees.

*Stipulation.*

In the trial of this cause in the District Court there were a number of exhibits filed by the Railroad Company. Exhibit No. 1 was what is known in the evidence as the Formula. It is printed in various sized types. The Appellee Railroad Company in this case had numerous modifications of the Formula which were noted by typewritten sheets being inserted at the pages of the Formula where the modifications occurred. The Court then had before it the original Formula and the modifications used thereof in this case. The appellants have caused to be prepared thirty five copies of the printed Formula with the typewritten modifications attached thereto as they were used in the trial court. It is agreed by the counsel on each side that in that way the Formula and its modifications are better presented to the Court than should the Formula as introduced in evidence be reprinted under the rules of the Court; that it would be extremely expensive to have it reprinted with these modifications, and confusing. There was much evidence adduced in regard to the original Formula and these modifications being presented to this Court in the same manner that it was presented in the District Court will facilitate this Court in understanding the testimony thereupon. The Appellee Railroad Company had its exhibits, which were numerous mathematical compilations, blueprinted. These blue printed exhibits are clear, easily read, and are made in size to accommodate the matter inserted therein, and it is a much more convenient method of presenting these mathematical statistics to the Court than having them printed according to the rules of the Court in ordinary printed form.

2363 That the appellants' exhibits of similar character contained mathematical calculations, some extremely voluminous, and these were presented in typewritten form to the District Court. The appellant has caused all of these exhibits to be blue printed and presents them to the Court in lieu of being printed in ordinary type. It is stipulated by the parties hereto that exhibit No. 1 in the form as above stated and the blue printed copies of the mathematical exhibits, shall be used subject to the approval of the Court, in the trial of this cause, in lieu of having the same printed in ordinary type. The counsel on each side state to the Court that in their opinion this method presents the exhibits to the Court in better shape than having them printed in ordinary type.

Wherefore, it is stipulated, subject to the approval of the Court, that the blue printed exhibits be not printed in ordinary type, but that they may be substituted for such printing.

JOS. M. HILL,
*Attorneys for the Appellants.*
JOHN M. MOORE,
*Attorneys for the Appellee.*

[Endorsed:] 648/24,931. Stipulation as to record on appeal.

2364 [Endorsed:] File No. 24,931. Supreme Court U. S., October term, 1915. Term No. 648. J. Sam Rowland et al., etc., Appellants, vs. Sidney E. Boyle, Adm'r, etc., et al. Stipulations as to record on appeal. Filed November 15, 1915.

2365 In the Supreme Court of the United States.

No. 648.

RAILROAD COMMISSION
vs.
BOYLE.

It is stipulated and agreed between counsel that in printing the record in said cause the Clerk of the Supreme Court shall omit and not print Exhibits 45, 50, 50*a*, 50*b*, 50*c*, 53 and DD.

That counsel for the respective parties may print and use any of the aforesaid exhibits in connection with the briefs filed by them in the Supreme Court in said cause.

It is further stipulated that copies of all exhibits in blue print contained in the record may be reproduced by the parties in the same form, that is as blue prints, and that such exhibits need not be printed through the office of the Clerk of the Supreme Court.

JOS. M. HILL,
*Attorney for Appellant.*
JOHN M. MOORE,
*Attorney for Appellee.*

[Endorsed:] 648/24,931. Stipulation to omit certain Exhibits in printing, &c.

2366 [Endorsed:] File No. 24,931. Supreme Court U. S., October term, 1915. Term No. 648. J. Sam Rowland et al., etc., Appellants, vs. Sidney E. Boyle, Adm'r, etc., et al. Stipulation to omit certain exhibits in printing. Filed November 15, 1915.

Endorsed on cover: File No. 24,931. E. Arkansas D. C. U. S. Term No. 648. J. Sam Rowland, William F. McKnight, and Thomas E. Wood, Railroad Commissioners of the State of Arkansas, appellants, vs. Sidney E. Boyle, as administrator of the estate of Wilbur F. Boyle, deceased, and The St. Louis & San Francisco Railroad Company. Filed September 30, 1915. File No. 24,931.

EXHIBIT No. 1

# Formula used in the Apportionment of Revenue, Expenses and Property to Interstate and Intrastate Passenger and Freight Traffic in the

# ARKANSAS RATE CASE

By the

## ST. LOUIS & SAN FRANCISCO RAILROAD.

The Committee appointed to formulate and recommend a plan for the apportionment of operating costs between freight and passenger service subdivided between interstate and intrastate, beg leave to submit the subjoined formula as conforming as nearly as may be to the rule laid down by the Supreme Court of the United States to the effect that the apportionment of expenses should follow the use of the property as closely as possible.

In submitting this formula, the Committee desire to acknowledge the valuable aid and counsel of the following gentlemen, who co-operated with the Committee in the preparation of the formula:

**ATCHISON, TOPEKA & SANTA FE RY. SYSTEM**

GARDINER LATHROP, General Solicitor.
S. T. BLEDSOE, General Attorney.
C. F. W. FELT, Chief Engineer.
H. C. PHILLIPS, Valuation Engineer.
R. A. RUTLEDGE, Chief Engineer.
A. L. CONRAD, Assistant General Auditor.
G. W. OLIVER, Assistant Statistician.

**GREAT NORTHERN RAILWAY**

E. C. LINDLEY, General Solicitor.
G. R. MARTIN, Comptroller.

**KANSAS CITY SOUTHERN RAILWAY**

A. F. RUST, Valuation Engineer.
P. E. WOOLEY, Assistant Auditor.

**LOUISVILLE & NASHVILLE RAILROAD**

GEO. W. LAMB, Assistant Comptroller.

**MISSOURI, KANSAS & TEXAS RAILWAY**

J. M. BRYSON, General Counsel.
C. L. JACKSON, General Attorney.
S. B. FISHER, Chairman Valuation Committee.

**ROCK ISLAND LINES**

M. L. BELL, General Attorney.
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R. C. SATTLEY, Valuation Engineer.
A. HERMANY, Auditor Disbursements.
E. H. SMITH, Secretary to Comptroller.

**ST. LOUIS & SAN FRANCISCO RAILROAD**

F. H. WOOD, General Attorney.
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P. A. MCLEOD, Engineering Department.

**ST. LOUIS SOUTHWESTERN RAILROAD**

R. E. KIMBELL, Assistant General Auditor.

**WABASH RAILROAD**

T. J. TOBIN, Auditor.

BY THE COMMITTEE:—

JAS. PEABODY, Statistician A. T. & S. F. Ry., Chairman.
F. NAY, Comptroller Rock Island Lines.
R. J. MCCARTY, Vice-President K. C. Sou. Ry.
E. W. PEABODY, Statistician M. K. & T. Ry.
T. A. HAMILTON, Supervisor of Efficiency St. L. & S. F. R. R.

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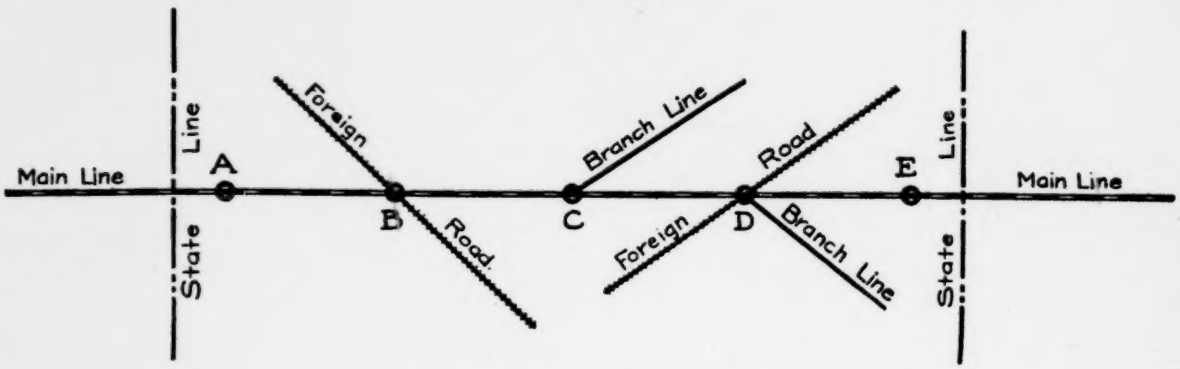
3

**ILLUSTRATIVE DIAGRAM OF THE DISTINCTION BETWEEN "LINE" AND "TERMINAL" TRAFFIC AND EXPENSES AT VARIOUS CLASSES OF STATIONS, AS USED IN THIS FORMULA.**




A. Local Station.

B. Junction with Foreign Road. Interchange Point.

C. Junction with Branch Line.

D. Junction with both Foreign Road and Branch Line.

E. Division Terminal. Local.

Expenses for Train Orders, Crossing Flagmen, Passenger Switching and Interlockers are "Line." Otherwise

All expense at "A" station is "Terminal."

All expense at "B" station is "Terminal."

All expense attaching to traffic **passing through** "C" station going to and coming from Branch Line points is "Line." All other, i. e., that which originates or terminates at this station is "Terminal."

All expense attaching to traffic **passing through** "D" station to or from Branch Line points is "Line." All other, including that going to or from Connecting Foreign Road, is "Terminal."

All expense attaching to traffic **passing through** "E" station is "Line." All other is "Terminal."

**EXPLANATORY.**

"Line" expenses are those which attach to, are directly connected with, or are occasioned by the transportation (movement) of traffic from place of receipt (one terminal) to the point of delivery (another terminal). Any service performed in the movement between these termini is a line service and any expense incident thereto constitutes a line expense.

"Terminal" expenses are those which attach to, or are connected with or occasioned by the securing, receiving, loading or otherwise preparing traffic for movement, and the unloading, delivery and other outlay incident to the disposition of the traffic at delivering or terminal station. Any service incident thereto and any expense incurred in connection therewith constitutes a "terminal" expense.

Examples: The expense of making up of a passenger train at a terminal is a line expense because it is a service performed for the movement of passengers throughout the entire route, and would be necessary even if there were no passengers to be moved from the terminal. The stopping of a passenger train at any station to let on or off passengers constitutes a terminal expense because it serves the public at that station. The switching, distribution and collecting of freight cars at any station is a terminal expense for the reason that it is occasioned by the existence of such station. A junction with a foreign line does not alter the case because the station is the terminal for such freight as comes from or goes to such foreign lines. Traffic **passing through** a station which is a junction with a **branch line,** going to or coming from branch line points even though handled at such station is line because it would have required the same service had there been no station at that point.

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## GENERAL OUTLINE OF PLAN FOR ACCUMULATING DATA AND DISTRIBUTING EXPENSES IN ORDER TO ASCERTAIN, AS NEARLY AS POSSIBLE, THE COSTS OF TRANSPORTING AND HANDLING INTRASTATE AND INTERSTATE FREIGHT AND PASSENGER TRAFFIC.

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### SCOPE OF PLAN.

The plan contemplates the allocation or apportionment of expenses into the following subdivisions, and, as far as possible, in the order specified, viz.:

(1) The apportionment of expenses as between States.

(2) Separation of entire expenses in the State under review between "Terminal," or station expense, and "Line" or hauling expense.

(3) Apportionment of both "Line" and "Terminal" expenses between Freight and Passenger.

(4) Apportionment of freight expenses, both "Line" and "Terminal," between Intrastate and Interstate traffic.

(5) Apportionment of passenger expenses, both "Line" and "Terminal," between Intrastate and Interstate traffic.

### "LINE" EXPENSES.

Line expenses, referred to under Item 2, are such as are necessary to or are incurred exclusively, or substantially exclusively, in the hauling of traffic or operating road train service through and within the state, and should include the following classes of maintenance and operation expenses:

### MAINTENANCE OF LINE.

Maintenance of main and passing tracks, tracks at division or train terminals used exclusively, or nearly exclusively, in making up and breaking up trains at points where trains are started and terminated, in reclassifying and storing through cars and through trains and passing them through yards, coach cleaning tracks, tracks used for storing caboose cars and wrecking outfits, tracks to and from coal chutes, shops, engine houses and turntables at points where no regular switching service is maintained, and suitable proportion of such tracks at points where switching service is maintained, based on relative use made thereof by Line and Terminal operations; maintenance of bridges, trestles, culverts, signals, crossings and signs pertaining to tracks and structures classed under this head; maintenance of right of way, snow and sand fences. Maintenance of buildings, structures and other facilities devoted exclusively to road train operation; also suitable use proportion of such buildings, structures and facilities as are regularly used jointly in "Line" and "Terminal" operation. Line proportion of maintenance of road and switch locomotives; also "Line" proportion of maintenance of traffic and work cars.

### OPERATION OF LINES.

Expense of operating trains while en route, and through trains through terminals; also expenses at Branch Line Junctions which attach to traffic passing through such junctions going to and coming from points beyond; also including suitable proportion of supervision, casualties, damages, etc.

### "TERMINAL" EXPENSES.

Terminal expenses are such as are incurred in originating, terminating and handling traffic at stations and to and from trains on which transported, including the reception and delivery of traffic interchanged with foreign lines; also transferring cars, freight and passengers at junction points with foreign lines. (Such transfers to Branch Lines are "Line.") The following classes of maintenance and operation expenses are to be included under this head:

### MAINTENANCE OF TERMINALS.

Maintenance of depot, house, storage, industry, team, transfer, scale, stockyards tracks, tracks used exclusively, or substantially exclusively, for classifying station and transfer cars (tracks used for handling traffic passing through branch line junctions and through trains requiring reclassification, should be classed

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**Administration of Plan:**

Classification of tracks as between "Line," "Terminal," "Freight," "Passenger," and "Common" was not made by Superintendents, but was handled in the following way. Special representative was sent out on each Division to confer with each Section Foreman and to classify all of the tracks under his charge. Each Section Foreman's time and material books were so arranged that the charges for labor and material on each separate track, or class of tracks, were entered therein each day.

The Company keeps separate, as a matter of its regular accounting, the charges for maintenance of all buildings, structures, etc., and these structures were classified as between Line and Terminal, Freight and Passenger, in the Division Superintendent's offices, the maintenance charges for each being set up separately under proper classification.

as "Line"). Suitable use proportion of tracks leading to and from, also at, coal chutes, water tanks, engine houses, shops, turntables and repair yards. Maintenance of terminal buildings and structures, such as freight and passenger depots, warehouses, platforms, etc., not occupied or exclusively used by employes, chargeable to "Line" operations, and suitable use proportion of such as are used in common for "Line" and "Terminal" operations. Maintenance of loading, unloading and transferring platforms, stockyards, elevators, coal and ore docks, scales, hay houses, and all other facilities used in originating and destination terminal operations; also terminal operation proportion of maintenance of locomotives and traffic and work cars.

## OPERATION OF TERMINALS.

Under terminal operations should be classed all expenses incurred in operating the terminal facilities previously described. There should be included all station expense other than that devoted to "Line" operations. All yard expenses incidental to switching station cars to and from trains, depots, warehouses, industries, connecting lines, stockyards and elevators (not including the work of reclassifying through trains at intermediate terminals, nor the switching or handling of traffic passing through branch line junctions going beyond), and suitable proportion of supervision, casualties, damages, etc. Under this head should also be classed all traffic expenses incurred in solicitation of passengers and freight and originating traffic; also weighing and demurrage bureaus, traffic associations, etc., and there should also be included a suitable proportion of general expenses.

## ADMINISTRATION OF THE PLAN.

For the purpose of compiling the necessary data, superintendents are required to classify the tracks, buildings, structures and other facilities at each station and terminal between:

(a) Line tracks and facilities.
(b) Terminal tracks and facilities.
(c) Tracks and facilities used in common.

Each of these classes of tracks and facilities should be further subdivided as between (1) exclusive freight tracks and facilities; (2) exclusive passenger tracks and facilities, and (3), tracks and facilities used in common in freight and passenger service. In making these classifications, the primary purpose and usual use of the track or facility should govern in its assignment, and the exceptional or only occasional uses in the other classes of service ignored.

In the daily and monthly distributions of labor and material charges, the classifications so made must be strictly followed, and in order that a proper assignment of expense can be made to the various subdivisions specified, it will be necessary to distribute charges and build up separately the maintenance expense of each building, structure and facility, also each of the separate classes of tracks mentioned, at each terminal. To illustrate: It is desired to bring out the maintenance expense incurred at each station, separated as between the following tracks:

| CLASS OF TRACK. | Use of Tracks. | | |
|---|---|---|---|
| | Exclusive Freight (1). | Exclusive Passenger (2). | Common to Freight and Passenger (3). |
| (a) Train tracks consisting of main and passing tracks... | ..... | ..... | ..... |
| (b) Station tracks consisting of all station service tracks not used for train or engine service..... | ..... | ..... | ..... |
| (c) Yard tracks consisting of classification tracks and storage tracks..... | ..... | ..... | ..... |
| (d) Shop tracks consisting of tracks to and about shops, also Storehouse and repair tracks..... | ..... | ..... | ..... |
| (e) Engine Houses, Turntables, Wye, Fuel and Water Tracks..... | ..... | ..... | ..... |

**Administration of Plan:**

**Distribution of Terminal Operation Expenses:**

The expenses for each station were kept separate, and subdivided as provided for in the formula, on basis of the time study made by the agent at each station. In the case of yard expenses, a time study of yard operations as between Freight, Passenger, and Line and Terminal, was made at each individual yard, but the expenses of each yard were not kept separate, the division of total yard expenses within the state being made on basis of an aggregate of the time study made at all yards within the state.

In distributing terminal operation expenses, the following subdivisions should be kept for each station:

All expenses chargeable to each of Accounts 63 to 78, inclusive, should be directly assigned to either of the following classes, viz.:

(1) Exclusive Freight.
(2) Exclusive Passenger.
(3) Common to Freight and Passenger.
(4) Mail.

The expenses assigned to each of these classes should, as far as possible, be further subdivided as between (a) "Line" expense, (b) "Terminal" expense, and (c) common to line and terminal, as heretofore defined. The freight station, clerical and labor expenses should be separated as between office, warehouse and other expenses, so that each of these three classes of expense can be apportioned to Intrastate and Interstate freight separately on an appropriate unit basis.

## EXPENSES OF LOCAL AND THROUGH TRAINS.

In order that a representative separation of freight train expenses between local and through trains can be made, superintendents' offices and fuel supervisors will arrange to keep separate account of the wages paid and fuel consumed by the following classes of trains, viz.: Way freight, other freight, mixed, and passenger. The enginemen's and trainmen's wages of each class of trains should be stated separately.

**Note 1.**—The order of assignment of expenses contained herein may be deviated from to accord with most convenient method, so long as the results reached are representative.

**Note 2.**—Mixed train and locomotive miles are apportioned to freight and passenger in the ratio that the respective freight and passenger gross ton miles in mixed trains bear to the total gross ton miles of such trains.

**Note 3.**—The term "Locate direct," as used throughout the formula contemplates such an analysis of expenditures as to conform to the actual location of all items which are exclusive in their nature.

**Note 4.**—Under assignment of "Expenses to States," the term "Common" used in connection with the Maintenance of Way and Structure accounts refer particularly to work performed in common and to overhead expenses and not to the expense attending work across state lines which should be located direct to states benefited on basis of track mileage involved.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 6)**

**Assignment of Revenues to the State of Arkansas:**

Straight Freight and Passenger Revenues.

Gross intrastate straight freight and passenger revenues were assigned to Arkansas direct from the Railroad's regular accounting records. All deductions from, or additions to gross revenue in the nature of adjustments, refunds, overcharge claim payments, switching absorptions, undercharges and kindred items, were analyzed, each item separately, and the result of this analysis applied against the gross revenue originally set up in the Railroad's regular accounting records.

Gross Interstate straight freight and passenger revenues were assigned to Arkansas on the following basis: Gross revenue accruing to the St. Louis & San Francisco Railroad for hauls between each station in Arkansas and each station on its Line in other States was tabulated separately, as was also the gross revenue accruing to the Railroad for its entire haul, between each pair of stations on its Line, from traffic which passed through Arkansas enroute, these tabulations, being made from the regular accounting records. Analysis was made of each item of adjustment covering refunds, overcharges, switching absorptions, undercharges and kindred items, as in the case of Intrastate revenue, and each separate item of adjustment applied directly against the road haul to which it attached, between each pair of stations. After applying these adjustments, the equated mileage prorate provided for in the original printed formula was made, with the exception that carload and less than carload freight was not treated separately.

Excess Baggage Revenue.

Intrastate located directly to Arkansas.

Interstate prorated between Arkansas and other States on a flat mileage basis, each individual haul between two given points being treated separately.

Express Revenue.

The Express Company operating over the lines of the St. Louis & San Francisco Railroad had not made any actual assignment of revenues to Arkansas by individual railroads, so that such actual assignment to that State was not available.

The contract of the St. Louis & San Francisco Railroad with the Express Company now, and previously, operating over its lines, carries, and has carried in the past, guarantee of a minimum payment to the Railroad per mile of road operated over by the Express Company. These guarantees vary with individual express routes, and are assumed to be relatively indicative of the earnings of the Railroad on the various express routes. In assigning express

Express Revenue—Continued.

revenues to Arkansas, these mileage guarantees have been applied to the mileage of each route on the entire railroad, and the guarantee earnings for Arkansas and other States determined upon a mileage basis of individual routes for such States. The resultant guarantee earning figures for Arkansas and other States have been used in determining the percentage relation of such guarantee earnings in Arkansas to the guarantee earnings of the railroad as a whole, and the percentage of such guarantee earnings assignable to Arkanas has been applied to the total actual expresss earnings of the St. Louis & San Francisco Railroad, the amount so obtained being credited to Arkansas as its proportion of actual express earnings.

Other Passenger Train Revenue. Revenues of this character when earned entirely within Arkansas were all credited to that State. When earned partially in Arkansas and partially in other States, assignment to Arkansas was made upon a road mileage prorate based on the haul governing individual items of earnings. The assignment between Intrastate and Interstate was made upon the same principle, each separate item of earnings being analyzed.

Switching Revenue. All switching revenue earned in Arkansas was credited to that State. The St. Louis & San Francisco Railroad earns no switching revenue for services across the State Lines of Arkansas. The classification of these earnings in Arkansas between Intrastate and Interstate was made on basis of the road haul to which the switching attached. In the case of switching revenue collected on shipments on which the St. Louis & San Francisco Railroad secured no road haul, the records of the carriers for whom the switching was performed were examined and the classification between Intrastate and Interstate made upon basis of the road haul enjoyed by such carriers. Industrial switching was all classified as Intrastate.

Each individual item of switching revenue was analyzed and classified as above. Debits to this account in the nature of switching paid other companies were classified as between Intrastate and Interstate in the same manner as is indicated above covering switching earned.

Miscellaneous Transportation Revenue. Each item of earnings of this character was analyzed separately. Such items as were earned within the State of Arkansas were all credited to that State. Of such items as were earned partially in Arkansas and partially in other States, Arkansas was assigned a straight mileage prorate, each item being treated separately. The classification between freight and passenger was made on basis of an actual allocation. Where the items attached themselves to a road haul, either freight or passenger, the classification between

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 6)**

Miscellaneous Transportation Revenues—Continued.

Intrastate and Interstate was made on basis of the road haul to which the item attached.

## BASES FOR THE APPORTIONMENT OF REVENUE OF STATES, TO FREIGHT AND PASSENGER SERVICE, AND TO INTRASTATE AND INTERSTATE TRAFFIC.

PRIMARY ACCOUNTS.

**Revenue from Transportation.**

| | | |
|---|---|---|
| 1 | Freight Revenue. | Assign intrastate revenue direct. Apportion interstate revenue on basis of mileage prorate, including equivalent mileage for terminal costs. |
| | | **FORMULA.** |
| | | Equivalent mileage for terminal costs is ascertained as follows: It is assumed, first, that the terminal cost per ton of state freight is neither more nor less than the terminal cost of interstate freight at the same station for carloads or less than carloads, respectively; second, that the line cost per gross ton mile of state freight is neither more nor less than the line cost of interstate or trans-state freight on the same train for either carloads or less than carloads; third, that as an average the terminal cost per ton on interstate freight going into, coming out or passing through a state is the same at both terminals and the same as the average terminal cost on interstate freight within the state for carloads and for less than carloads, respectively. |
| | | Divide the ascertained terminal cost per ton of carload and less than carload freight, respectively, by the line cost per ton mile, and the quotient will be the equivalent of the terminal cost expressed in ton miles. Multiply these equivalent ton miles by the number of terminal tons of interstate freight within the State (both originating and terminating) and add the product to the total ton miles of interstate freight (including trans-state) hauled within the State, carloads and less than carloads being treated separately. Make the same computation in connection with the number of terminal tons and number of ton miles of the same freight outside the State. The two results thus reached will form the basis of the prorate proportion of the interstate freight revenue which is to be credited to the State. |
| 2 | Passenger Revenue. | Assign revenue on intrastate passenger direct. Apportion interstate passenger revenue on basis of straight mileage prorate, including equivalent mileage for terminal cost. |
| | | **Note.**—The same principle applies to the division of passenger interstate revenue as to freight under Account 1. That is to say, the average terminal cost per passenger in the State should be reduced to the equivalent of passenger miles and applied both within and outside the State to the number of terminal interstate passengers traveling in and through the State, thus forming a basis for a prorata apportionment of the interstate passenger revenue. |
| 3 | Excess Baggage Revenue. | Same as Account 2. |
| 4 | Parlor and Chair Car Revenue. | Assign intrastate revenue direct. Apportion interstate on straight mileage prorate. |
| 5 | Mail Revenue. | Assign according to route. No division between intrastate and interstate. (See Note under Account 6.) |
| 6 | Express Revenue. | As assigned and reported by the Express Company, both as to intrastate and interstate. |
| | | **Note.**—No attempt is made to apportion either mail and express revenue or mail and express expenses as between intrastate and interstate, but that so far as these items are concerned the method adopted in previous rate cases is to be followed; that is to say, deduct from "Line" and "Terminal" passenger expenses the amount determined by the Formula as assignable to Mail and Express, making no division between intrastate and interstate. |
| 7 | Milk Revenue on Passenger Trains. | Locate to State direct. Interstate to be apportioned on mileage prorate. |
| 8 | Other Passenger Train Revenue. | Locate as far as possible and divide unlocatable items on most appropriate available units. Same rule to be followed in subdivision between intrastate and interstate. |
| 9 | Switch Revenue. | Locate to State in which service is performed, dividing switching across State lines equally, except where exceptional conditions require a different division in order to be equitable. Locate to freight or passenger according to class of equipment and divide between intrastate and interstate in accordance with decision Interstate Commerce Commission Docket 1637, West Texas Fuel Co. vs. Texas & Pacific R. R. et al., 15 I. C. C. R-443; that is, the credit to switching revenue should follow the class of business switched. |
| 10 | Special Service Train Revenue. | Locate to State. Apportion interstate on basis of straight mileage prorate. Locate direct as to freight and passenger where possible and apportion common on basis of appropriate unit. |
| 11 | Miscellaneous Transportation. | Locate as far as possible and divide unlocatable items on most appropriate available units. Same rule to be followed in subdivision between intrastate and interstate. |

| | |
|---|---|
| Storage Freight. | The printed formula was followed with the exception that some minor adjustments in the nature of refunds not definitely allocatable as between Intrastate and Interstate traffic were divided between those two classes of traffic on basis of the assignment of actually located items. |
| Storage Baggage. | Assigned on same basis as revenue from Parcel Room Receipts, for lack of necessary data to make assignment prescribed in the printed formula. |
| Car Service. | Same modifications were made in printed formula as in the case of Storage Freight. |
| Joint Facilities Revenue—Dr., and Joint Facilities Revenue—Cr. | The net debit or credit in these two accounts being similar in nature to the earnings on account of Station Privileges, have been assigned on the same basis as the earnings in that account. |

**Income Account.**

Rentals.

All rentals earned and rentals incurred, as properly accrued on the Railroad's books, for the periods covered by Exhibits Nos. 22, 24, 25, 26, 27, have been set up in such exhibits in one lump sum as a net credit for each period (the rental earned in each period having exceeded the rental charges incurred). The rentals earned by the Railroad and treated as set forth herein, consist of items of the following characters:

Rental of Joint Tracks, Depots and Memphis and Van Buren Bridges. (Interstate Commerce Account "Joint Facilities Rent-Income.")

Rentals of Buildings and other property. (Interstate Commerce Revenue Account No. 18.)

Proportion accruing to the St. Louis and San Francisco Railroad, of space rental for sundry concessions in joint stations. (Interstate Commerce Revenue Account No. 21.)

The rentals incurred by the Railroad, and treated as set forth herein, consist of items of the following character:

Rentals of Miscellaneous Joint Tracks and Depots. (Interstate Commerce Account—Joint Facility Rent—Deductions.)

Rental paid for the use of the Kansas City, Fort Scott and Memphis Railway.

All rentals earned or incurred wholly within the State of Arkansas have been credited or charged entirely to that State.

Of rentals earned from, and incurred on account of tracks and other facilities lying partially in Arkansas and partially in other States, there has been assigned to Arkansas its road mileage proportion, based upon the mileage of each individual track or facility. The apportionment of the debits or credits for rental assigned to the State of Arkansas, as hereinbefore described, was made between freight and passenger, and mail and express on basis of actual use of the rented property or facility wherever possible, and where actual use location was not practicable such assignment was made on basis of the assignment of operating charges and credits in Interstate Commerce Accounts Nos. 22, 23, 51, 52, 77, 78, 104, 105, 115, and 116, these being the joint facility operating debit and credit accounts covering the operating expenses of tracks, facilities, etc., the rentals, earned from, or incurred on account of the use of which, were apportioned to Arkansas, as outlined above. These joint facility expense account charges and credits are based upon the use made of each facility by the various classes of service, and reflect such use. Division of these net rentals between Intrastate and Interstate was made, in the case of the freight proportion on basis of respective ton miles of each class, and in the case of the passenger proportion on basis of the respective passenger miles of each class.

One exception to such basis of apportionment of rentals between freight and passenger, Intrastate and Interstate, and mail and express, was made in the case of rentals earned from the use by other carriers of the Memphis Bridge. These rentals were divided between freight and passenger on basis of the freight and passenger train mileage made by St. Louis and San Francisco Railroad trains over the bridge and its auxiliary facilities in the State of Arkansas, and the freight and passenger proportions of this rental credit

so determined were assigned to Interstate traffic. A car-foot mile proportion of the passenger assignment of this credit was allotted to mail and express, based upon the car-foot mileage space, devoted to mail and express in trains passing over the Memphis Bridge and its facilities in Arkansas.

Another exception was made in the division of the rentals paid for the use of the Kansas City, Fort Scott and Memphis Railway (Arkansas proportion assigned upon a road mileage basis). The portion of this rental assigned to Arkansas was divided between freight and passenger on basis of the revenue train miles in each class of service made on the tracks of the Kansas City, Fort Scott and Memphis Railway in Arkansas. The mixed train mileage over the Kansas City, Fort Scott and Memphis Railway in Arkansas, was assigned between freight and passenger on basis of the respective freight and passenger gross ton miles in such trains. The freight proportion of this rental was assigned to Intrastate and Interstate on basis of the respective ton miles of each class hauled over the Kansas City, Fort Scott and Memphis Railway within the State of Arkansas. Of the passenger proportion of this rental charge, a proportion was first assigned to mail and express on basis of the car-foot miles chargeable to mail and express on the Kansas City, Fort Scott and Memphis Railway in Arkansas. The remainder of the passenger proportion of this rental charge was subdivided between Intrastate and Interstate traffic on basis of the respective passenger miles of each class made upon the Kansas City, Fort Scott and Memphis Railway in Arkansas. The train mile, car foot mile, ton mile and passenger mile figures, wherever used in dividing both the Memphis Bridge rental credit and Kansas City, Fort Scott and Memphis Railway rental charge, were those obtained by special tests made during the months of November and December, 1913.

Rentals of buildings and other property (Interstate Commerce Revenue Account No. 18) have been divided between freight and passenger, Intrastate and Interstate, mail and express, as provided for in the printed formula (page seven).

Hire of Equipment.

Items of debit or credit common to freight, passenger, mail and express traffic, were subdivided upon a relative use unit basis as set forth in detail in Exhibit No. 5, and the assignment of equipment values, upon which page seven of the

printed formula provided these common items should be divided, was made upon basis of the same use units. This is not a modification of the principle laid down in the formula, but simply a difference, in following the method prescribed for the application of that principle, in the order in which the assignment should be made.

| ACCOUNTS. | |
|---|---|
| **Revenue from Operations other than Transportation.** | |
| 12 Station and Train Privileges. | All passenger. Locate to State as far as possible and divide unlocated on basis of revenue passenger train miles. Divide as between intrastate and interstate on basis of respective passenger miles in state. |
| 13 Parcel Room Receipts. | Assign to State in which located and divide between intrastate and interstate on respective number of intrastate and interstate passengers using station. |
| 14 Storage Freight. | |
| 15 Storage Baggage. | Assign to State where collected and locate as to intrastate and interstate and to Freight and Passenger according to class of shipment. |
| 16 Car Service. | |
| 17 Telegraph and Telephone Service. | Locate to State according to collections and divide intrastate and interstate on same basis. Apportion to freight and passenger on basis of assigned charges in Account 63 in operating expenses. |
| 18 Rents of Buildings and Other Property. | Locate to State in which situated. After excluding rents derived from mail and express facilities, if any, apportion remainder to freight and passenger subdivided between intrastate and interstate on basis of assigned charges to all M. of W. & S. Accounts 1 to 23, inclusive. |
| 19 Miscellaneous. | Locate to State in which revenue originates. Locate to freight and passenger intrastate and interstate as far as possible and apportion remainder on basis of operating expenses Accounts 106 to 116, inclusive. (General Expenses.) |
| 20 Joint Facilities Revenue—Dr. | Assign to State and to freight and passenger intrastate and interstate as credited on original account. |
| 21 Joint Facilities Revenue—Cr. | Locate to State in which revenue originates and also locate to freight and passenger, mail and express and apportion freight and passenger between intrastate and interstate on basis of assigned charges in corresponding revenue accounts. |
| **Income Accounts.** | |
| Taxes. | Locate State taxes as accrued and divide between freight and passenger and between intrastate and interstate according to the basis used in making assessments; i. e., where valuation of property is the basis of assessment apportion taxes on the basis used by the railroad for the apportionment of property to the above classes, and where revenue is the basis of assessment, apportion taxes on the basis of the assignment of revenue to the above classes. Federal taxes to be apportioned to states, to mail and express and to intrastate and interstate freight and passenger on the basis of assignment of total net income to each class. |
| Outside Operations. | Each outside operation to be considered separately and wherever any of the expenses incident thereto are included in operating expenses, the net balance of such outside operations shall be included in determining the net operating income. Apportionment as to intrastate and interstate freight and passenger to be made on units appropriate to each operation. |
| Hire of Equipment. | Locate to States on basis of mileage of locomotives, Pullman cars and other passenger train cars, freight cars and work equipment, respectively, and make division of all common items between the various classes of traffic (freight, passenger, mail and express, and intrastate and interstate) on basis of assigned equipment values. Pullman car mileage and rentals to be determined for each individual line on which rentals accrue. |
| Joint Facilities Rent—Income.<br>Joint Facilities Rent—Deductions. | Locate to State in which situated and divide between freight and passenger intrastate and interstate on basis of assignment of operating debits and credits to each facility separately. |
| Other Items. | All other items under income statement to be considered on their merits following the general rule of apportionment according to appropriate units. |

St. Louis and San Francisco Railroad—Modification of Formula. (Page 8.)

ROADWAY TOOLS AND SUPPLIES:

STATIONERY AND PRINTING:

"OTHER EXPENSES":

MAINTENANCE JOINT TRACKS AND OTHER FACILITIES—Dr. and Cr.

The common items in these accounts have been assigned on basis of all located charges, and not upon basis of located labor charges only, as provided in the printed formula.

## ASSIGNMENT OF EXPENSES TO STATES BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct wherever possible. Supervision across State Line to be prorated on mileage basis. Common expenses to be apportioned on basis of the assigned charges to all other M. of W. & S. accounts (Accounts 22 and 23 excepted) on the operating divisions to which the supervision applies.

**2 BALLAST.**

Locate direct. Expenses for ballast across State Line to be prorated on mileage basis. Common expenses to be apportioned on the basis of located charges to this account in each State.

**3 TIES.**

Locate direct. Common expenses to be apportioned on basis of located cost of Ties inserted.

**4 RAILS.**

Locate direct. Apportion common expenses on basis of cost of rails laid in respective States.

**5 OTHER TRACK MATERIAL.**

Locate direct. Common expenses to be apportioned on basis of the cost of track material used in respective States.

**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

Locate direct. Work on sections across State Lines to be apportioned on mileage basis. Common expenses to be apportioned on the basis of located.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**
**12 SNOW AND SAND FENCES AND SNOW SHEDS.**
**13 SIGNALS AND INTERLOCKING PLANTS.**

Locate direct. Common expenses to be apportioned on basis of located.

**14 TELEGRAPH AND TELEPHONE LINES.**

Locate direct to State wherever possible. Common expenses to be apportioned on the basis of railroad and joint wire mileage in each State.

**15 ELECTRIC POWER TRANSMISSION.**

Locate direct to State wherever possible. Common expenses to be apportioned on basis of power transmission wire mileage in each State.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct, except General Offices, General Shops and All Stores, which apportion to States as follows:
(a) General Offices on basis of General Expenses (Accounts 106 to 116, inclusive), as assigned.
(b) General Shops and All Stores on basis of total Maintenance of Equipment (Accounts 24 to 52, inclusive), as assigned.

**17 DOCKS AND WHARVES.**

Locate direct.

**18 ROADWAY, TOOLS AND SUPPLIES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of located M. of W. & S. labor charges.

**19 INJURIES TO PERSONS.**

Locate direct wherever possible. Common expenses to be apportioned on basis of located.

**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of M. W. & S. labor charges.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Dr.**

Charge direct to State in which located. Common expenses to be apportioned on basis of located labor charges to facility involved.

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Cr.**

Credit direct to State in which located. Common expenses to be assigned on basis of located labor charges to facility involved.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each State, apportion on basis of the aggregate of such charges.

**Maintenance of Equipment:**

**STEAM LOCOMOTIVE REPAIRS, RENEWALS AND DEPRECIATION.**

The St. Louis and San Francisco Railroad had not, during the periods for which an analysis of expenses has been made kept separate detail of running repair costs by individual locomotives. It had, however, kept an accurate record of the classified or general repair costs by individual locomotives. Running repair costs were, therefore, necessarily assigned on basis of the general repair costs. It is not believed that this does any violence to the accuracy of the figures.

Where engines were operated in one class of service only, the general repair costs thereof automatically attached themselves to that class of service. Where engines were operated in two or more classes of service, their general repair costs were necessarily divided between the various classes of service on basis of the mileage made in each. It is not practicable to determine how much of the repair costs of an engine employed in two or more classes of service is actually assignable to each.

The locomotives of the St. Louis and San Francisco Railroad are not permanently assigned to operating divisions, but are quite frequently moved from division to division and from state to state, nor are they all assigned permanently to any one class of service, although the Railroad has a great many engines which are definitely so assigned. In order, therefore, to assign locomotive repair costs to the State of Arkansas, an actual allocation was made to Arkansas and to individual classes of service wherever an individual engine performed all of its service within that state or in one class of service. The repair costs of engines performing service both in Arkansas and in other states, and in two or more classes of service, were assigned to Arkansas and the various classes of service on basis of average mileage repair costs.

The plan employed in accomplishing this was as follows: The general repair costs between the last two general overhaulings were determined for each locomotive in service on the entire railroad. The mileage in each class of service for all locomotives was also ascertained. The general repair costs of engines making all their mileage between the last two general overhaulings in one class of service, together with such mileage, was charged to that particular class of service. The general repair costs between the last two general overhaulings of engines employed in more than one class of service were prorated between these classes of service on basis of the mileage made in each, and the resultant division of repair costs and the mileage in each class of service charged to each respective class of service. In this way a total cost and

total mileage was built up, and an average cost per mile run in each class of service determined. This entire road average cost per mile run in each class of service was applied to the entire road mileage in each class of service during the year ended June 30th, 1913, bringing out on this relative basis the average cost for general repairs to locomotives in each class of service per mile run. This average cost per mile run was applied against the **actual** mileage made on the entire railroad in the respective classes of service during the year ended June 30th, 1913, and a relative repair total cost for each class of service thus determined.

The percentage relation of this relative repair cost in each class of service to the total relative repair cost in all classes of service was determined, and the percents so obtained applied against the actual charges for locomotive repairs, renewals and depreciation taken up for the entire railroad on the company's books for the year ended June 30th, 1913. The result was an assignment of the company's total actual charges for repairs, renewals and depreciation between the various classes of locomotive service. Into the charge for repairs, renewals and depreciation in each class of service was divided the actual mileage made during the year ended June 30th, 1913, in each class of service, and there was thus obtained an average cost per mile run in each class of service for the year on the railroad as a whole. This average cost in each class of service was applied to the actual mileage made in the State of Arkansas during the year ended June 30th, 1913, and a total and classified locomotive repair cost for that state obtained in this way. Similar assignment was made for the months of November and December, 1913.

This process involves some assumptions: One, that the average repair costs per mile run were the same in the various classes of service in all states traversed by the railroad; another, that the types and sizes of power in service in Arkansas were typical of the locomotive equipment of the entire railroad; another, that the general reapir costs per mile run between the last two general overhaulings of all locomotives were a fair indicative average of the usual costs per mile run for all repairs.

**Maintenance of Equipment:**

**PASSENGER TRAIN CAR REPAIRS.**

Accident repairs were not localized to the State.

**FREIGHT TRAIN CAR REPAIRS.**

Accident repairs were not localized to the State.

**WORK EQUIPMENT REPAIRS.**

Apportioned on basis of work car mileage. Accident repairs not localized.

## Maintenance of Equipment—Continued.

**25 STEAM LOCOMOTIVE REPAIRS.**

The cost of the running repairs of locomotives should be assigned to States on the basis of the mileage of the individual locomotives in the current month and the cost of the general repairs of locomotives should be assigned to States on the basis of the mileage of the individual locomotives since the last general repairs. The cost of repairing damages caused by collisions, derailments and similar accidents should be localized to the extent of the damage done.

**26 STEAM LOCOMOTIVE RENEWALS.**

Apportion on basis of total miles run by locomotives in each State, except that renewals account of accidents, as enumerated under Account 25, are to be localized.

**27 STEAM LOCOMOTIVE DEPRECIATION.**

Apportion on basis of total miles run by locomotives in each State. (No exception account accident repairs.)

**28 ELECTRIC LOCOMOTIVE REPAIRS.**
**29 ELECTRIC LOCOMOTIVE RENEWALS.**
**30 ELECTRIC LOCOMOTIVE DEPRECIATION.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CAR REPAIRS.**

Assign to States on basis of passenger car mileage in each State, Pullman car mileage excepted. Accident repairs, including Pullmans, to be localized.

**32 PASSENGER TRAIN CAR RENEWALS.**
**33 PASSENGER TRAIN CAR DEPRECIATION.**

Same as Account 31, so far as affected.

**34 FREIGHT TRAIN CAR REPAIRS.**

Assign to State on basis of freight car mileage in each State. Accident repairs to be localized.

**35 FREIGHT TRAIN CAR RENEWALS.**
**36 FREIGHT TRAIN CAR DEPRECIATION.**

Same as Account 34, so far as affected.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Use same proportions for freight and passenger cars, respectively, as between States and between "Line" and "Terminal," as is determined by the assignment to States, and to "Line" and "Terminal," under Accounts 31 and 34, respectively.

**40 FLOATING EQUIPMENT REPAIRS.**
**41 FLOATING EQUIPMENT RENEWALS.**
**42 FLOATING EQUIPMENT DEPRECIATION.**

Locate to State in which used. Where such equipment crosses State lines, divide on mileage basis or other appropriate unit.

**43 WORK EQUIPMENT REPAIRS.**
**44 WORK EQUIPMENT RENEWALS.**
**45 WORK EQUIPMENT DEPRECIATION.**

Apportion to States on basis of Work Equipment car mileage in each State. Where such car mileage is not available, use Work Train miles. Localize accident repairs.

**46 SHOP MACHINERY AND TOOLS.**

After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each State, apportion on basis of the aggregate of such charges.

**47 POWER PLANT EQUIPMENT.**

Assign to States on basis of power furnished.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**

After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each State, apportion on basis of the aggregate of such charges.

**50 OTHER EXPENSES.**

Locate direct wherever possible. Apportion common expenses same as Accounts 48 and 49.

**51 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—Dr. 52 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—Cr.**

Locate direct wherever possible. Common expenses to be apportioned on basis of use.

## Traffic Expenses:

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

After making the division between freight and passenger, apportion to States on basis of revenue net ton miles and revenue passenger miles.



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**St. Louis and San Francisco Railroad—Modification of Formula. (Page 10.)**

**Transportation Expenses:**

**SUPERINTENDENCE.**

In apportioning common expenses the assigned charges under Accounts 77 and 78—Operating Joint Yards and Terminals, Debit and Credit, were excluded from consideration, for the reason that a debit or credit for superintendence is included in the vouchers and bills upon which the charges and credits to these accounts are made.

**DISPATCHING TRAINS.**

Expense of Dispatchers, whose territory was entirely within the State of Arkansas, was all charged to that State. Expense of Dispatchers whose territories crossed the State Line was divided between Arkansas and other States on a road mileage basis, each such territory being treated separately.

**WEIGHING AND CAR SERVICE ASSOCIATIONS.**

Assignment of this expense made to Arkansas on basis of the percentage relation of the total net tons handled in that State to the total net tons handled on the entire railroad.

**FUEL FOR ROAD LOCOMOITVES.**

The St. Louis and San Francisco Railroad maintains, as part of its regular operating statistics, a fuel consumption record for each individual engine on each trip in each class of service, and from this record an actual assignment was made to the State of Arkansas, the consumption on runs crossing the State line being prorated on a straight engine mile basis for each individual trip.

Inasmuch as all fuel consumed on the entire railroad is charged out at an entire line average price and this is necessitated by the constant changing of distribution methods owing to conditions at the source of supply, the System average price prevailing during the period under review was applied to the tonnage consumption, ascertained as stated and the fuel charge to the State of Arkansas determined in that way.

The cost of handling fuel at fuel stations has been included in the cost of fuel for road locomotives, and was arrived at by determining the average cost per ton for fuel station handling in Arkansas during the period under review, and applying that cost to the actual tonnage consumption of fuel in that State.

## St. Louis and San Francisco Railroad—Modification of Formula. (Page 10)

**WATER FOR ROAD LOCOMOTIVES.**

For the reason that the consumption of water by road locomotives directly follows the consumption of fuel, Arkansas was assigned a proportion of the entire line charge for locomotive water supply, based upon the relation of the tonnage consumption of fuel in that state to the tonnage consumption upon the entire line, by road locomotives.

**LUBRICANTS FOR ROAD LOCOMOTIVES.**
**OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Assigned to Arkansas on a locomotive mileage basis.

**TRAIN SUPPLIES AND EXPENSES.**

The provisions of the printed formula were observed with the exception that the cost of detouring trains over foreign lines was treated as a separate item. This was assigned to Arkansas direct if the entire detour was within that State, or prorated between Arkansas and other States on basis of the mileage of the detour if the detour crossed the Arkansas State line.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct wherever possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Locate direct to State on basis of smallest available territorial operating unit. Subdivide overlapping units on basis of total train mileage of such units in each State.

**63 STATION EMPLOYES.**

Locate direct to State where employed.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

Expenses of Weighing and Inspection Bureaus should be located, as far as possible, on the basis of the location of the employes of such Associations and Bureaus. Unlocated expenses should be apportioned on the basis of localized expenses under this head. The expenses for Car Service Associations should be apportioned on the basis of the total number of cars handled by each Association in each State.

**65 COAL AND ORE DOCKS.**

Assign to State in which located.

**66 STATION SUPPLIES AND EXPENSES.**

Assign to State in which station is located.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXP-YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES YARD LOCOMOTIVES.**
**77 OPTG. JT. YDS. AND TERM.—Dr.**
**78 OPTG. JT. YDS. AND TERM.—Cr.**

Assign to State in which located. In case of Yards and Terminals located on or across State line, each road will make most equitable division possible under existing conditions.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**

Locate direct as to State. Apportion runs crossing State lines on basis of mileage of run in each State.

**81 ENGINEHOUSE EXPENSES—ROAD.**

Apportion to States on basis of total road locomotive mileage by States.

**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Locate direct wherever possible and apportion common expenses on basis of the mileage of locomotives involved.

**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**

Locate to States on basis of mileage of equipment using such power.

**88 ROAD TRAINMEN.**

Locate to States according to service and apportion runs crossing State lines on basis of mileage of run in each State.

**89 TRAIN SUPPLIES AND EXPENSES.**

First divide as between freight and passenger and apportion to States on the basis of the respective car mileage of each class in each State.

**90 INTERLOCKER AND BLOCK SIGNAL OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**

Assign to State in which located.

**93 CLEARING WRECKS.**

Locate to State in which wreck occurred. Common supplies to be apportioned to State on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to States on basis of all operating accounts, 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Locate to State in which used. Where such equipment crosses State lines, divide on mileage basis or other appropriate unit.

**96 EXPRESS SERVICE.**

No charges to this account.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 11.)**

**Transportation Expenses:**

**STATIONERY AND PRINTING.**
**"OTHER EXPENSES."**

In apportioning common expenses the assigned charges under Accounts 77 and 78—Operating Joint Yards and Terminals, Debit and Credit, were excluded from consideration, for the reason that a debit or credit for stationery and printing or "other expenses" is included in the vouchers and bills upon which the charges and credits to these accounts are made.

## Transportation Expenses—Continued.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate direct wherever possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE FREIGHT.** **100 LOSS AND DAMAGE BAGGAGE.**

Locate to State wherever possible, and apportion unlocated Loss and Damage on basis road mileage over which each shipment moved. Overhead charges to be apportioned on basis of assigned charges to this account.

**101 DAMAGE TO PROPERTY.**
**102 DAMAGE TO STOCK ON RIGHT OF WAY.**
**103 INJURIES TO PERSONS.**

Locate to State wherever possible, and apportion common expenses on basis located charges to this account.

**104 OPERATING JOINT TRACKS AND FACILITIES—Dr.** **105 OPERATING JOINT TRACKS AND FACILITIES—Cr.**

Assign to State in which located. In case of Yards and Terminals located on or across State Line each road will use most equitable division possible under existing conditions.

## General Expenses:

**106 SALARIES AND EXPENSES—GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES—CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**

After dividing between freight and passenger, apportion on basis of assignment to all operating expenses Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Locate as to State Solicitor and local attorneys. Common expenses on basis of assigned charges to all accounts, 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**

Apportion on basis of assigned charges, Accounts 1 to 105, inclusive.

**115 GENERAL ADMINISTRATION JT. TRKS., YARDS AND TERM.—Dr.** **116 GENERAL ADMINISTRATION JT. TRKS., YARDS AND TERM—Cr.**

Locate to State in which facilities are operated.

**113½ VALUATION EXPENSES.**

Locate wherever possible. Common expenses to be apportioned on basis of track miles (all tracks.)

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 12.)**

**Maintenance of Way and Structures:**

**BUILDINGS, FIXTURES AND GROUNDS.**

Division of expense of maintenance of depot buildings occupied by employes whose duties involved both line and terminal operations, was made upon basis of occupancy, determined by a time study made at each individual station, and not upon a space basis.

By a time study, in this connection, is meant a detailed record kept of the time devoted to line and terminal service by employes occupying each building.

Expenses of maintaining section and tool houses were apportioned between line and terminal on basis of the line and terminal allocation of all charges in maintenance of way accounts 2 to 10, inclusive, labor and material both included.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct wherever possible. Common expenses to be apportioned as between "Line" and "Terminal" on the basis of the assigned charges to all other M. of W. & S. accounts, under each sub-head, on the operating division to which supervision applies.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

"Line" and "Terminal" track maintenance expenditures are primarily charged against the individual tracks benefited, and the tracks and their maintenance are grouped as follows:

(a) Train tracks, consisting of main and passing tracks.

(b) Station tracks, consisting of all station service tracks not used for train or engine service.

(c) Yard tracks, consisting of classification tracks and storage tracks.

(d) Shop tracks, consisting of tracks to and about shops; also Storehouse and repair tracks.

(e) Engine Houses, Turntables, Wye, Fuel and Water Tracks.

Tracks and their maintenance included under (a) are located direct to "Line," and assigned to freight, passenger or common, according to use.

Tracks and their maintenance included under (b) are located direct to "Terminal," and assigned to freight.

Tracks and their maintenance included under (c) to be located to "Line."

Tracks and their maintenance included under (d) are grouped for any State and divided between "Line" and "Terminal," on basis of repair charges assigned to "Line" and "Terminal" in Accounts 25, 31 and 34 for entire State.

Tracks and their maintenance included under (e) are treated separately for each train terminal and apportioned to "Line" and "Terminal" on basis of assigned charges to accounts 72 and 81.

Under accounts 9 and 10, Bridges and Structures, common to "Line" and "Terminal," to be apportioned on basis of number of each class of track served.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**

Locate Signs according to purpose served. Crossing and Cattle Guards according to tracks served. Fences to be charged to "Line."

**12 SNOW AND SAND FENCES AND SNOW SHEDS.**

**13 SIGNALS AND INTERLOCKING PLANTS.**

Locate direct to "Line."

**14 TELEGRAPH AND TELEPHONE LINES.**

All common; to be apportioned half and half between "Line" and "Terminal."

**15 ELECTRIC POWER TRANSMISSION.**

Locate according to class of service benefited.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct wherever used exclusively for "Line" or "Terminal." Buildings used in common to be apportioned on basis of estimated use as follows:

Depots and other station buildings, occupied by employes whose duties involve both "Line" and "Terminal" operations, such as telegraph operators, dispatchers, etc., should be apportioned on sum of estimated occupancy for "Line" and "Terminal" operations, considering each building separately and on its merits (proportion used for account of Mail and Express to be classed as "Line"). Apportion Engine Houses on basis of assigned charges in Accounts 72 and 81. Apportion all Shop Buildings, Fixtures, etc., and all Store Houses on basis of locomotive and car repair charges assigned to "Line" and "Terminal." Apportion Section and Tool Houses on basis of labor assigned to "Line" or "Terminal," under Account 6. Apportion General Offices, Reading Rooms, Eating Houses on basis half and half to "Line" and "Terminal." Allocate Track Scales, Scale Houses, Hay Houses, Dwelling Houses, Warehouses, etc., to "Terminal." Charges account of Coal Chutes and Water facilities at all points where switch service is maintained should be apportioned to "Line" and "Terminal" on basis of assigned charges for Fuel and Water under Accounts 73 and 82 and 74 and 83, respectively. Such facilities at all other points to be charged exclusively to "Line." Each Stock Yard should be located to "Line" or "Terminal," according to use. Grounds to be included with buildings to which attached.

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**Maintenance of Way and Structures:**

**ROADWAY TOOLS AND SUPPLIES.**

Common expenses apportioned on basis of all assigned charges (both labor and material) in Maintenance of Way Accounts 2 to 17, inclusive.

**STATIONERY AND PRINTING.**
**"OTHER SUPPLIES."**

Same exceptions as under Roadway Tools and Supplies.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures—Continued.

**17 DOCKS AND WHARVES.**

Charge to "Line" or "Terminal," according to use.

**18 ROADWAY TOOLS AND SUPPLIES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of labor charges assigned to other M. W. & S. accounts under "Line" and "Terminal."

**19 INJURIES TO PERSONS.**

Locate direct wherever possible. Common expenses to be apportioned to "Line" and "Terminal" on basis of located.

**20 STATIONERY AND PRINTING.** **21 OTHER EXPENSES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of M. W. & S. labor charges to "Line" and "Terminal," respectively.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Charge direct to "Line" or "Terminal," according to service (passenger proportion of all tracks, signals and interlockers to be considered as "Line" and assign accordingly).

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Credit direct to class of operations, according to charge made on original bill.

### Maintenance Equipment:

**24 SUPERINTENDENCE.**

After ascertaining the amount of charges to be assigned to locomotive, passenger car, freight car and work equipment repairs under "Line" and "Terminal," respectively, apportion on basis of the aggregate of such assigned charges.

**25 STEAM LOCOMOTIVE REPAIRS.**

After the division has been made between freight and passenger, apportion road freight locomotive repairs to "Line" and "Terminal," in the ratio that time in "Line" service and time in "Terminal" service bears to the total time on road. Passenger locomotive repairs to be divided between "Line" and "Terminal" in same proportion as is determined for passenger cars. Switch locomotives to be apportioned between "Line" and "Terminal" on basis of time employed in switching Line and Terminal cars, respectively. The amount assignable to "Work" to be ascertained on mileage basis and apportioned between "Line" and "Terminal" on same basis as specified for Account 43 (Work Equipment Repairs).

**26 STEAM LOCOMOTIVE RENEWALS.** **27 STEAM LOCOMOTIVE DEPRECIATION.**

Apportion on basis of the respective assigned charges to Account 25.

**28 ELECTRIC LOCOMOTIVE REPAIRS.**
**29 ELECTRIC LOCOMOTIVE RENEWALS.** **30 ELECTRIC LOCOMOTIVE DEPRECIATION.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CAR REPAIRS.**

The amount of repairs to passenger train cars attributable to "Line" or "Terminal" service (except accident repairs) is wholly a matter of opinion, which must be determined by experts, who, because of their experience, are properly qualified to make such estimates. It, therefore, was submitted by Letter Ballot by the Chairman of the General Managers' Association to its members, as to the proportions properly chargeable to "Line" and "Terminal," and the average of such expressed opinions has been used in the assignment under these two classes. The submission of the question was accompanied by a full explanation of exactly what under this formula constitutes "Line" and "Terminal" service, respectively. The proportions thus arrived at were 64.94% "Line" and 35.06% to "Terminal."

**32 PASSENGER TRAIN CAR RENEWALS.** **33 PASSENGER TRAIN CAR DEPRECIATION.**

Apportion on basis of assigned charges to Account 31.

St. Louis and San Francisco Railroad—Modification of Formula. (Page 14.)

**Transportation Expenses:**

**SUPERINTENDENCE.**

Common expenses were apportioned on basis outlined in the formula with the exception, that the assigned charges to Accounts 77 and 78 were omitted from consideration. The reason for omitting from consideration the assigned charges in Accounts 77 and 78 is that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Maintenance of Equipment—Continued.

**34 FREIGHT TRAIN CAR REPAIRS.**

The amount of repairs to freight train cars attributable to "Line" or "Terminal" service (except accident repairs) is wholly a matter of opinion which must be determined by experts, who, because of their experience, are properly qualified to make such estimates. It, therefore, was submitted by Letter Ballot by the Chairman of the General Managers' Association to its members as to the proportions properly chargeable to "Line" and "Terminal" and the average of such expressed opinions has been used in the assignment under these two classes. The submission of the question was accompanied by a full explanation of exactly what under this formula constitutes "Line" and "Terminal" service, respectively. The proportions thus arrived at were 36.03 "Line" and 63.97 "Terminal."

**35 FREIGHT TRAIN CAR RENEWALS.** **36 FREIGHT TRAIN CAR DEPRECIATION.**

Apportion on basis of assigned charges to Account 34.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.** **39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Use same proportions for freight and passenger cars respectively as between states and between "Line" and "Terminal," as is determined by the assignment to states, and to "Line" and "Terminal" under Accounts 31 and 34, respectively.

**40 FLOATING EQUIPMENT REPAIRS.**
**41 FLOATING EQUIPMENT RENEWALS.** **42 FLOATING EQUIPMENT DEPRECIATION.**

Locate to Line and Terminal according to service rendered. Common expenses, if any, to be apportioned on basis of located.

**43 WORK EQUIPMENT REPAIRS.**
**44 WORK EQUIPMENT RENEWALS.** **45 WORK EQUIPMENT DEPRECIATION.**

Apportion to "Line" and "Terminal" on basis assigned charges to "Line" and "Terminal" in Accounts 2 to 17, inclusive.

**46 SHOP MACHINERY AND TOOLS.**

After ascertaining the amount of charges to be assigned to locomotive, passenger car, freight car and work equipment repairs under "Line" and "Terminal," respectively, apportion on basis of the aggregate of such assigned charges.

**47 POWER PLANT EQUIPMENT.**

Apportion to "Line" and "Terminal" on basis of power furnished in each class of service.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.** **50 OTHER EXPENSES.**

After ascertaining the amount of charges to be assigned to locomotive, passenger car, freight car and work equipment repairs under "Line" and "Terminal," respectively, apportion on basis of the aggregate of such assigned charges.

**51 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—DR.** **52 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—CR.**

Assign to "Terminal" exclusively.

### Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Assign to "Terminal," exclusively.

### Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct wherever possible. Apportion common expenses on basis of assigned charges to accounts 62 to 95, inclusive, omitting Account 94.

St. Louis and San Francisco Railroad—Modification of Formula. (Page 15.)

**Transportation Expenses:**

**YARD SERVICE—Accounts 67 to 78, inc.**

The printed formula was deviated from to this extent; the expenses of each yard were not treated separately, but the total yard expenses assigned to the State of Arkansas were divided upon basis of an aggregate of the time studies made in all yards.

## Transportation Expenses—Continued.

**62 DISPATCHING TRAINS.**

Assign to "Line" exclusively.

**63 STATION EMPLOYES.**

Consider each individual at each station separately, and assign to "Line" or Terminal," according to duties performed. Agents and other common employes at larger terminals, whose duties are chiefly supervisory, should be apportioned on the assigned expenses to other employes at their particular station.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.** **65 COAL AND ORE DOCKS.**

Assign exclusively to "Terminal."

**66 STATION SUPPLIES AND EXPENSES.**

Locate direct wherever possible and apportion common expenses on basis of the assignment to "Line" and "Terminal" in Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Yard service accounts 67 to 78, inclusive, to be divided on a time basis between "Line" and "Terminal," Freight and Passenger and special subdivisions thereof as local conditions may require in order to determine with the most accuracy the proper division between the "Line" and "Terminal" cost, respectively. The expenses of each yard are to be treated separately. "Line Switching" embraces the handling of caboose cars, and such other cars (which neither originate or terminate at the station thus handling) as are taken off or put on trains but are only passing through. It includes those cars passing through junction points coming from or going to branch line points as well as cars transferred enroute. Cars received from or going to foreign connections are "Terminal," as are all cars handled for local purposes.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINEHOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**

Apportionment of these expenses between "Line" and "Terminal" to be made on the basis of the ratio that the time devoted by passenger locomotives and by freight locomotives, respectively, to station service bears to the total time of such locomotives on the road and the amount to be included hereunder will be that which is ascertained under "Line" and "Terminal," respectively.

**90 INTERLOCKER AND BLOCK SIGNAL OPERATION.**

Assign to "Line," exclusively.

**91 CROSSING FLAGMEN AND GATEMEN.** **92 DRAWBRIDGE OPERATION.**

Locate wherever possible. Apportion expenses of such as serve both "Line" and "Terminal" tracks on basis of number of each class of track served.

**93 CLEARING WRECKS.**

Allocate to "Line" or "Terminal" according to service engaged in at time of wreck, common expenses to be apportioned on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to "Line" and "Terminal" on basis of all operating accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Assign to "Line" or "Terminal" on basis of cars handled in respective services.

## Transportation Expenses.

**STATIONERY AND PRINTING.**
**"OTHER EXPENSES."**

Common expenses were apportioned on basis outlined in the formula, with the exception that the assigned charges to Accounts 77 and 78 were omitted from consideration. The reason for omitting from consideration the assigned charges to Accounts 77 and 78 is that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for stationery and printing or "other expenses."

**LOSS AND DAMAGE FREIGHT.**
**LOSS AND DAMAGE BAGGAGE.**

It was found impracticable to make an actual allocation of these expenses between line and terminal from the information available in the records of the railroad. The allocation was, therefore, made from the original vouchers direct to State and Interstate, and a line and terminal subdivision of each of these allocations made upon basis of the assigned charges in Accounts 63 to 89, inclusive, station yard and train service, the actual allocation as between State and Interstate being observed in the subsequent division of line and terminal expenses between Intrastate and Interstate. The arbitrary division of these expenses between line and terminal as set forth above, was essential in order that relative line and terminal costs per ton and per ton mile and per passenger and per passenger mile might be obtained for use in the equation of mileages used in prorating interstate revenue.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**96 EXPRESS SERVICE.**

No charges to this account.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Charge direct wherever possible, and apportion common expenses on basis of assigned charges to accounts 62 to 95, inclusive, omitting account 94.

**99 LOSS AND DAMAGE FREIGHT.** **100 LOSS AND DAMAGE BAGGAGE.**

Before assigning to "Line" and "Terminal," locate direct to intrastate and interstate from vouchers. Common to be divided on basis of located. After having located to intrastate and interstate, located between "Line" and "Terminal" as far as possible and divide common on basis of located.

**101 DAMAGE TO PROPERTY.**

Locate to "Line" or "Terminal," according to cause wherever possible, and apportion common expenses on basis of located.

**102 DAMAGE TO STOCK ON RIGHT OF WAY.** **103 INJURIES TO PERSONS.**

Locate payment to "Line" or "Terminal" wherever possible, according to responsibility. Unlocated payments and other expenses to be apportioned on the basis of allocated.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Assign to "Line" or "Terminal" according to nature of operations involved.

### General Expenses.

**106 SALARIES AND EXPENSES GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**

After dividing between freight and passenger apportion on basis of assignment to all operating expenses, Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Apportion on basis of assigned charges, Accounts 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**

Apportion on basis of assigned charges Accounts 1 to 105, inclusive.

**115 GENERAL ADMINSTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.** **116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**

Locate to "Line" or "Terminal," according to nature of operation.

**113½ VALUATION EXPENSES.**

Apportion on basis of assigned charges, Accounts 1 to 105, inclusive.

## Maintenance of Way and Structures.

### SIGNALS AND INTERLOCKING PLANTS.

The expense of maintaining signals was divided between freight and passenger on the same basis as the maintenance of interlockers, for the reason that separate maintenance figures were not available for signals and interlockers.

### BUILDINGS, FIXTURES AND GROUNDS.

Expense of maintaining common depots or station buildings was divided upon the basis of the time devoted by employes housed in such buildings to each class of service.

The only eating house maintained on the railroad's property in Arkansas, is at Harvard yard, and is maintained solely for the benefit of Harvard Yard employes and freight crews whose terminal is at that point. It is not used either by passenger train crews or passengers, and the charges for its maintenance have, therefore, all been assigned to freight service.

Maintenance of section and tool houses was apportioned on basis of assigned charges to maintenance of way Accounts 2 to 10, inclusive.

### ROADWAY TOOLS AND SUPPLIES.

Apportioned on basis of assigned charges in Accounts 2 to 17, inclusive.

## APPORTIONMENT OF LINE EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct to freight and passenger wherever possible. Apportion common "Line" expenses on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

Locate exclusive freight and passenger tracks direct. The apportionment of the maintenance expenses of Line and other Common tracks, as between freight and passenger, is to be made on the basis of Engine Ton Miles based on weight of engines in working order.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**

**12 SNOW AND SAND FENCES AND SNOW SHEDS.**

Apportion on basis of revenue train miles.

**13 SIGNALS AND INTERLOCKING PLANTS.**

Apportionment for Interlockers on basis of respective number of freight and passenger trains passing over interlockers. Signals on basis of respective train miles.

**14 TELEGRAPH AND TELEPHONE LINES.**

Locate direct as far as possible. Common on basis of revenue train miles.

**15 ELECTRIC POWER TRANSMISSION.**

Locate direct to class of service served.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct to freight or passenger, according to purpose for which used. Structures and Facilities used in common for both freight and passenger service to be apportioned as follows: Common depots and station buildings on basis of estimated proportion of repairs incurred by each class of service considering each building on its merits. Engine houses on basis of assigned charges to Accounts 72 and 81. Shops on basis of assigned locomotive and car repairs charged to freight or passenger. Fuel and Water stations on basis of assigned charges to Accounts 73 and 82 and 74 and 83, respectively. Eating Houses to be assigned to passenger. Section and Tool Houses apportioned on basis of assigned charges to Account 6. Other common buildings and structures on basis of estimated use in each class of service, treating each one separately. Grounds to be treated on same basis as buildings with which they are directly connected or serve.

**17 DOCKS AND WHARVES.**

Locate direct. Apportion common on basis of use for freight or passenger service.

**18 ROADWAY TOOLS AND SUPPLIES.**

Apportion to freight or passenger on basis of revenue train mileage.

**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Locate direct to freight and passenger wherever possible. Apportion common "line" expenses on basis of assigned charges in accounts 2 to 17, inclusive.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Locate direct so far as possible. Apportion common charges on basis of revenue train miles of district.

## APPORTIONMENT OF LINE EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**25 STEAM LOCOMOTIVES—REPAIRS.**

Before dividing between Line and Terminal apportion between freight, passenger, switch and work on basis of miles run by individual locomotives in each service, and subdivide switch proportion on basis of time spent in freight and passenger switching and the work proportion on basis of assigned charges in accounts 2 to 17, inclusive.

**26 STEAM LOCOMOTIVES—RENEWALS.** **27 STEAM LOCOMOTIVES—DEPRECIATION.**

Apportion on basis assigned charges to Account 25.

**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.** **30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.** **33 PASSENGER TRAIN CARS—DEPRECIATION.**

Assign to Passenger.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.** **36 FREIGHT TRAIN CARS—DEPRECIATION.**

Assign to Freight.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.** **39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same basis as shown for freight and passenger cars, respectively, in all subdivisions.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.** **42 FLOATING EQUIPMENT—DEPRECIATION.**

Locate to freight and passenger according to service rendered.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.** **45 WORK EQUIPMENT—DEPRECIATION.**

Apportion on basis of assigned charges to Accounts 2 to 17, inclusive, in both classes.

**46 SHOP MACHINERY AND TOOLS.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**47 POWER PLANT EQUIPMENT.**

Apportion on basis of power used.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.** **50 OTHER EXPENSES.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.** **52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

No charges.

### Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

No charges.

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Transportation Expenses.

SUPERINTENDENCE.

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

STATION EMPLOYES.

The proportion of employes time chargeable to line telegraph service was divided between freight and passenger on basis of revenue train mileage.

YARD SERVICE—Accounts 67 to 78, inc.

The division prescribed in the formula was made with the exception that the division of expenses in each yard was not made separately. The total yard expenses assigned to Arkansas was divided on basis of the aggregate of the time study made in all the yards in that State.

LUBRICANTS FOR ROAD LOCOMOTIVES.

OTHER SUPPLIES FOR ROAD LOCOMOTIVES.

Apportioned between freight, passenger and mixed on an engine mile basis. Mixed train engine proportion subdivided between freight and passenger as prescribed in the printed formula.

## APPORTIONMENT OF LINE EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Apportion on sum of total train mileage of freight and passenger trains in same territorial units as are used for dividing as between states.

**63 STATION EMPLOYES.**

Consider each individual employ separately and locate direct to freight or passenger in the proportion of the duties performed in each class of service.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

No charges.

**65 COAL AND ORE DOCKS.**

No charges.

**66 STATION SUPPLIES AND EXPENSES.**

Locate direct according to use as far as possible. Common expenses to be apportioned on basis of assigned Line charges under Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Yard Service Accounts 67 to 78, inclusive, to be divided on time basis between Line, Freight and Passenger and Terminal Freight and Passenger, with special subdivisions thereof as local conditions may require in order to determine with the most accuracy the proper division between classes. The expenses of each yard are to be treated separately. All passenger switching to be considered "Line."

**79 MOTORMEN.**

**80 ROAD ENGINEMEN.**

Locate direct according to service performed. Mixed service to be apportioned on basis of respective freight and passenger gross ton miles in mixed trains.

**81 ENGINEHOUSE EXPENSES—ROAD.**

Apportion to freight or passenger on basis of locomotives handled. Locomotives in mixed service to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Locate direct and apportion common on basis of fuel issues to locomotives involved. Mixed engine mileage on basis of respective freight and passenger gross ton miles.

**86 OPERATING POWER PLANTS.**

**87 PURCHASED POWER.**

Apportion as between freight and passenger on basis of the mileage of equipment used employing such power.

**88 ROAD TRAINMEN.**

**89 TRAIN SUPPLIES AND EXPENSES.**

Locate direct. Expenses of mixed trains to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**90 INTERLOCKERS AND BLOCKS AND OTHER SIGNALS—OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**

Apportion expenses between freight and passenger on basis of respective freight and passenger trains passing such facilities.

**Transportation Expenses.**

**STATIONERY AND PRINTING.**

**"OTHER EXPENSES."**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for Stationery and Printing or "Other Expenses."

## Transportation Expenses—Continued.

**93 CLEARING WRECKS.**

Locate to freight and passenger according to service engaged in at time of wreck. Common expenses to be apportioned on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to freight and passenger on basis of all operating Accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Assign to freight and passenger according to service performed.

**96 EXPRESS SERVICE.**

No charges to this account.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate as far as possible and apportion to freight and passenger on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

Assign to Freight.

**100 LOSS AND DAMAGE—BAGGAGE.**

Assign to Passenger.

**101 DAMAGE TO PROPERTY.**
**102 DAMAGE TO STOCK ON RIGHT OF WAY.** **103 INJURIES TO PERSONS.**

Locate as far as possible and apportion common to freight or passenger on basis of located expenses to this account.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Assign to freight and passenger as far as possible and apportion common expenses on respective revenue train mileage by divisions.

## General Expenses.

**106 SALARIES AND EXPENSES, GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES, CLERKS AND ATTENDANTS.** **108 GENERAL OFFICE SUPPLIES AND EXPENSES.**

Before dividing to States locate direct so far as possible and apportion common expenses on basis of assigned charges to Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Apportion to freight and passenger on basis of assigned charges Accounts 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF DEPARTMENT—EXPENSES.**
**112 PENSIONS.** **113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**

Apportion on basis of assigned charges Accounts 1 to 105, inclusive.

**115 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.** **116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINAKS—CR.**

Locate as far as possible and apportion common expenses both line and terminal on basis of assigned charges in all other joint facility accounts.

**113½ VALUATION EXPENSES.**

Apportion freight and passenger on basis of assigned charges in Accounts 1 to 105, inclusive.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 21.)**

**Maintenance of Way and Structures.**

**BUILDINGS, FIXTURES AND GROUNDS.**

Expense of maintaining common depots and station buildings was divided upon the basis of the time devoted to each class of service by employes housed in such buildings.

The only eating house maintained on the Railroad's property in Arkansas, is in Harvard Yard, and is maintained solely for the benefit of Harvard Yard employes and freight crews having their terminal at that point. It is not used either by passenger train crews or passengers, and the charges for its maintenance have, therefore, all been assigned to freight service.

Maintenance of section and tool houses was apportioned on basis of assigned charges in maintenance of way Accounts 2 to 10, inclusive.

**ROADWAY TOOLS AND SUPPLIES.**

Apportioned on basis of assigned charges in Accounts 2 to 17, inclusive.

## APPORTIONMENT OF TERMINAL EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct to freight and passenger wherever possible. Apportion common "Terminal" expenses on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

Locate direct to freight or passenger where used exclusively in either service. Common tracks, such as Shop, Store House and Repair tracks, to be apportioned on basis of assigned charges in Accounts 25, 31 and 34. Engine House, Turn Tables, Wye, Fuel and Water Tracks to be apportioned on basis of assigned charges in Accounts 72 and 81.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**

All charges to freight.

**12 SNOW AND SAND FENCES AND SNOW SHEDS.**

No charge to Terminal.

**13 SIGNALS AND INTERLOCKING PLANTS.**

**14 TELEGRAPH AND TELEPHONE LINES.**

Apportion on basis of assigned charges to freight and passenger in Account 63.

**15 ELECTRIC POWER TRANSMISSION.**

Locate direct to class of service performed.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct to freight or passenger, according to purpose for which used. Structures and Facilities used in common for both freight and passenger service to be apportioned as follows: Common depots and station buildings on basis of estimated proportion of repairs incurred by each class of service, considering each building on its merits. Engine houses on basis of assigned charges to Accounts 72 and 81. Shops on basis of assigned locomotive and car repairs charged to freight or passenger. Fuel and Water Stations on basis of assigned charges to Accounts 73 and 82 and 74 and 83, respectively. Eating Houses to be assigned to passenger. Section and Tool Houses apportioned on basis of assigned charges to Account 6. Other common buildings and structures on basis of estimated use in each class of service, treating each one separately. Grounds to be treated on same basis as buildings with which they are directly connected or serve.

**17 DOCKS AND WHARVES.**

Locate direct. Apportion common on basis of use for either freight or passenger service.

**18 ROADWAY TOOLS AND SUPPLIES.**

All freight.

**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Locate direct to freight and passenger wherever possible. Apportion common "Terminal" expenses on basis of assigned charges in Accounts 2 to 17, inclusive.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**
**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Locate direct so far as possible. Apportion common charges on basis of respective cars handled at such terminals.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**25 STEAM LOCOMOTIVES—REPAIRS.**

Before dividing between Line and Terminal, apportion between freight, passenger, switch and work on basis of miles run by individual locomotives in each service, and subdivide switch proportion on basis of time spent in freight and passenger switching, and work proportion on basis of assigned charges in Accounts 2 to 17, inclusive.

**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**

Apportion on basis assigned charges to Account 25.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 22.)**

**Transportation Expenses.**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

**STATION EMPLOYES.**

The proportion of employes time chargeable to line telegraph service was divided between freight and passenger on basis of revenue train mileage.

**YARD SERVICE—ACCOUNTS 67 to 75.**

The division prescribed in the formula was made, with the exception that the division of expenses of each yard was not made separately. The total yard expense assigned to Arkansas was divided on basis of an aggregate of the time study made in all the yards in that State.

## APPORTIONMENT OF TERMINAL EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Maintenance of Equipment—Continued.

**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

Assign to passenger.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**

Assign to Freight.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same basis as shown for freight and passenger cars, respectively, in all subdivisions.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Locate to freight and passenger according to service rendered.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

Apportion on basis of assigned charges to Accounts 2 to 17, inclusive, in both classes.

**46 SHOP MACHINERY AND TOOLS.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**47 POWER PLANT EQUIPMENT.**

Apportion on basis of power used.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.**
**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

Locate direct where possible. Apportion common expenses on basis of respective cars handled at such terminals.

### Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Locate direct where possible. Apportion common 50 per cent each to freight and passenger.

### Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

No charges.

**63 STATION EMPLOYES.**

Consider each individual employe separately and locate direct to freight or passenger in the proportion of the duties performed in each class of service.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**
**65 COAL AND ORE DOCKS.**

Assign to Freight.

**66 STATION SUPPLIES AND EXPENSES.**

Locate direct according to use as far as possible. Common and terminal expenses to be apportioned on basis of assigned terminal charges under Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Yard Service, Accounts 67 to 78, inclusive, to be divided on time basis between Line Freight and Passenger and Terminal Freight and Passenger, with special subdivisions thereof as local conditions may require, in order to determine with the most accuracy the proper division between classes. The expenses of each yard are to be treated separately. All passenger switching to be considered "Line."

**Transportation Expenses.**

**LUBRICANTS FOR ROAD LOCOMOTIVES.**
**OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Apportioned between freight, passenger and mixed on an engine mile basis. Mixed train engine proportion subdivided between freight and passenger as prescribed in the printed formula.

**STATIONERY AND PRINTING.**
**"OTHER EXPENSES."**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for stationery and printing or "other expenses."

## Transportation Expenses—Continued.

**79 MOTORMEN.** **80 ROAD ENGINEMEN.**

Locate direct according to service performed. Mixed service to be apportioned on basis of respective freight and passenger gross ton miles in mixed trains.

**81 ENGINEHOUSE EXPENSES—ROAD.**

Apportion to freight or passenger on basis of locomotives handled. Locomotives in mixed service to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Locate direct and apportion common on basis of fuel issues to locomotives involved. Mixed engine mileage on basis of respective freight and passenger gross ton miles.

**86 OPERATING POWER PLANTS.** **87 PURCHASED POWER.**

Apportion as between freight and passenger on basis of the mileage of equipment used employing such power.

**88 ROAD TRAINMEN.** **89 TRAIN SUPPLIES AND EXPENSES.**

Locate direct. Expenses of mixed trains to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**90 INTERLOCKERS AND BLOCKS AND OTHER SIGNALS—OPERATION.**

No charges.

**91 CROSSING FLAGMEN AND GATEMEN.** **92 DRAWBRIDGE OPERATION.**

Apportion to freight and passenger on basis of assigned charges, Accounts 67 to 78, inclusive.

**93 CLEARING WRECKS.**

Locate to freight and passenger according to service engaged in at time of wreck. Common expenses to be apportioned on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to freight and passenger on basis of all operating Accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Assign to freight and passenger according to service performed.

**96 EXPRESS SERVICE.**

No charges to this account.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

Assign to Freight.

**100 LOSS AND DAMAGE—BAGGAGE.**

Assign to Passenger.

**101 DAMAGE TO PROPERTY.** **102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Locate as far as possible and apportion common to freight or passenger on basis of located expenses to this account.

## APPORTIONMENT OF TERMINAL EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**103 INJURIES TO PERSONS.**

Locate to freight or passenger according to responsibility and apportion common on basis of located in this account.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Locate to freight and passenger as far as possible. Apportion common expenses on basis of cars handled.

### General Expenses.

**106 SALARIES AND EXPENSES, GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES, CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**

Before dividing to States, locate direct so far as possible and apportion common expenses on basis of assigned charges to Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Apportion to freight and passenger on basis of assigned charges, Accounts 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF DEPARTMENT—EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**

Apportion to freight and passenger on basis of assigned charges, Accounts 1 to 105, inclusive.

**115 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.** **116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**

Locate as far as possible and apportion common expenses, both line and terminal, on basis of assigned charges in all other joint facility accounts.

**113½ VALUATION EXPENSES.**

Apportion freight and passenger on basis of assigned charges in Accounts 1 to 105, inclusive.

## APPORTIONMENT OF LINE PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 to 23 ALL MAINTENANCE OF WAY AND STRUCTURES ACCOUNTS.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class, and (c) other cars, on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars on the respective passengers one mile carried in each class, and (c) other cars on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Same as Steam Locomotives.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

Apportion on basis of car foot miles of such cars, the repairs, renewals and depreciation on Company (home) cars included in these accounts to passenger, mail and express, respectively, and subdivide the passenger proportion between day coaches and other cars on basis of respective car foot miles. The proportion for the day coaches thus ascertained to be subdivided on the respective state and interstate passenger miles carried in such cars. The proportion for other cars to be divided on basis of total state and interstate passenger miles in all cars. Pullman car repairs embraced in these accounts to be divided on basis of respective state and interstate passenger miles carried in Pullman cars.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**

No charge.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same as for passenger train cars.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipment.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class and (c) other cars, on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**47 POWER PLANT EQUIPMENT.**

Same as for passenger train cars.

**Transportation Expenses.**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

## Maintenance of Equipment—Continued.

48 INJURIES TO PERSONS.
49 STATIONERY AND PRINTING.
50 OTHER EXPENSES.

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.
52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class, and (c) other cars on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

## Traffic Expenses.

53 to 60, inc. ALL TRAFFIC ACCOUNTS.

No charge.

## Transportation Expenses.

61 SUPERINTENDENCE.

Apportion on basis of assigned charges, Accounts 62 to 95, inclusive, omitting Account 94.

62 DISPATCHING TRAINS.

Apportion to passenger, mail and express on basis of car foot miles and divide passenger proportion between state and interstate on basis of respective passenger miles.

63 STATION EMPLOYES.

Apportion to passenger, mail and express on basis car foot miles. Passenger proportion between state and interstate on basis of respective passenger miles.

64 WEIGHING AND CAR SERVICE ASSOCIATIONS.
65 COAL AND ORE BEDS.

No charge.

66 STATION SUPPLIES AND EXPENSES.

Apportion on basis of assigned charges to Account 63.

67 YARD MASTERS AND THEIR CLERKS.
68 YARD CONDUCTORS AND BRAKEMEN.
69 YARD SWITCH AND SIGNAL TENDERS.
70 YARD SUPPLIES AND EXPENSES.
71 YARD ENGINEMEN.
72 ENGINEHOUSE EXPENSES—YARD.
73 FUEL FOR YARD LOCOMOTIVES.
74 WATER FOR YARD LOCOMOTIVES.
75 LUBRICANTS FOR YARD LOCOMOTIVES.
76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.
77 OPERATING JOINT YARDS AND TERMINALS—DR.
78 OPERATING JOINT YARDS AND TERMINALS—CR.

Apportion to passenger, mail and express on basis of car foot miles and divide passenger proportion on basis of respective state and interstate passenger miles in entire state.

79 MOTORMEN.
80 ROAD ENGINEMEN.
81 ENGINEHOUSE EXPENSES—ROAD.
82 FUEL FOR ROAD LOCOMOTIVES.
83 WATER FOR ROAD LOCOMOTIVES.
84 LUBRICANTS FOR ROAD LOCOMOTIVES.
85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.
86 OPERATING POWER PLANTS.
87 PURCHASED POWER.
88 ROAD TRAINMEN.
89 TRAIN SUPPLIES AND EXPENSES.
90 INTERLOCKS AND BLOCKS AND OTHER SIGNALS—OPERATION.
91 CROSSING FLAGMEN AND GATEMEN.
92 DRAWBRIDGE OPERATIONS.
93 CLEARING WRECKS.

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger), except that baggagemen and train auditors are to be considered exclusively passenger and deducted before applying car foot miles to Account 88, and afterward added to passenger proportion. Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class, and (c) other cars on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

**Transportation Expenses.**

STATIONERY AND PRINTING.
"OTHER EXPENSES."

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for stationery and printing or "other expenses."

INJURIES TO PERSONS.

Apportioned to State and Interstate on basis of respective passengers one mile, for the reason that it was impracticable to locate actually from vouchers.

## APPORTIONMENT OF LINE PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

**Transportation Expenses—Continued.**

**94 TELEGRAPH AND TELEPHONE—OPERATION.**

Apportion on basis of all operating Accounts, 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipment.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

No charge.

**100 LOSS AND DAMAGE—BAGGAGE.**

Before assigning to Line and Terminal, this account should be located direct from vouchers to state and interstate, and to Line and Terminal as far as possible. Unlocated items to be apportioned on the basis of located.

**101 DAMAGE TO PROPERTY.** **102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Apportion to state and interstate on basis of respective passengers one mile.

**103 INJURIES TO PERSONS.**

Locate as to state and interstate from voucher. All other on same basis as Account 101.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Apportion to state and interstate on basis of respective passengers one mile.

**106 SALARIES AND EXPENSES—GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES—CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**109 LAW EXPENSES.**
**110 INSURANCE.**
**111 RELIEF DEPARTMENT EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**113½ VALUATION EXPENSES.**
**114 OTHER EXPENSES.**
**115 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS.**
**116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**

Apportion to state and interstate on basis of assigned charges to operating Accounts 1 to 105, inclusive.

APPORTIONMENT OF LINE FREIGHT BETWEEN INTRASTATE AND INTERSTATE.

Apportionment of line freight expenses between Intrastate and Interstate was made upon the following basis: The total gross ton mileage of each local and through freight train was ascertained, and a recapitulation thereof made to obtain the total gross ton miles of all local and all through freight trains. In the case of local and through freight trains, the gross ton miles include the weight of the engine, the average loading of the engine tank with coal and water, and the weight of the empty cars and loaded cars and contents in the trains, and also the weight of the caboose. The total gross ten miles of mixed trains were also recapitulated and divided between freight and passenger upon basis of the gross ton mileage of freight and passenger equipment and contents in the train, behind the engine tank. In the case of mixed trains the gross ton miles consisted of the same component parts as described for local and through freight trains, the weight of the passenger car or cars and their contents on basis of an estimate of 3,500 pounds for the contents of each car, being also included.

In assigning the gross ton miles of mixed trains to freight and passenger as described above, the weight of the engine and the average load on the engine tank were divided between freight and passenger on basis of the freight and passenger gross ton miles in such trains behind the engine tank.

Having ascertained the gross ton miles of local freight trains, through freight trains and the freight proportion of mixed trains in the manner outlined above, these results were used as factors on which all Line freight expenses, with the exception of wages of train and enginemen and fuel and water for road locomotives, were divided between local, through and mixed trains, the mixed train proportion being included with the local freight train proportion for the reason that the mixed train, in its freight functions, performs purely local service. Having thus divided all other Line freight expenses, the wages of train and enginemen and the expenses of fuel and water on mixed trains, were divided between freight and passenger on basis of the respective gross ton mileages in each class of service in mixed trains, as outlined above, the freight proportion of these expenses being then included with similar expenses of local freight trains.

Having in this way set up a Line freight cost assignable to local and mixed trains on one hand, and to through freight trains on the other hand, the expenses of each class of train (mixed being included with local freights), were divided between Intrastate and Interstate on basis of the net ton miles of each class hauled upon each class of train.

## APPORTIONMENT OF LINE FREIGHT BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

**1 to 23 MAINTENANCE OF WAY AND STRUCTURES.**

The apportionment between state and interstate is to be made on the basis of the respective gross ton miles of revenue freight ascertained as follows: Each train and each loaded car in the train is to be considered individually, the tare weight of the car being added to the weight of the contents in making the computation. Where cars contain both state and interstate freight, the tare ton miles of the car are to be distributed between the state and interstate in the proportion that the net ton miles of the respective state and interstate freight in the car bear to each other. The ton miles of the locomotive and the caboose of each train are then to be distributed between state and interstate in the proportion of the respective state and interstate gross ton miles of the loaded cars in the train. The ton miles of the empty cars will be ascertained separately for each train and in the final distribution of the entire traffic on each train district the aggregate ton miles of the empty cars will be divided between state and interstate in the proportion of the state and interstate traffic in the loaded cars.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**
**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

The apportionment between state and interstate is to be made on the basis of the respective gross ton miles of revenue freight ascertained as follows: Each train and each loaded car in the train is to be considered individually, the tare weight of the car being added to the weight of the contents in making the computation. Where cars contain both state and interstate freight, the tare ton miles of the car are to be distributed between the state and interstate in the proportion that the net ton miles of the respective state and interstate freight in the car bear to each other. The ton miles of the locomotive and the caboose of each train are then to be distributed between state and interstate in the proportion of the respective state and interstate gross ton miles of the loaded cars in the train. The ton miles of the empty cars will be ascertained separately for each train and in the final distribution of the entire traffic on each train district the aggregate ton miles of the empty cars will be divided between state and interstate in the proportion of the state and interstate traffic in the loaded cars.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

No charge.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**
**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

The apportionment between state and interstate is to be made on the basis of the respective gross ton-miles of revenue freight ascertained as follows: Each train and each loaded car in the train is to be considered individually, the tare weight of the car being added to the weight of the contents in making the computation. Where cars contain both state and interstate freight, the tare ton-miles of the car are to be distributed between the state and interstate in the proportion that the net ton-miles of the respective state and interstate freight in the car bear to each other. The ton-miles of the locomotive and the caboose of each train are then to be distributed between state and interstate in the proportion of the respective state and interstate gross ton miles of the loaded cars in the train. The ton miles of the empty cars will be ascertained separately for each train and in the final distribution of the entire traffic on each train district the aggregate ton miles of the empty cars will be divided between state and interstate in the proportion of the state and interstate traffic in the loaded cars.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Divide as to state and interstate on basis of respective number of revenue tons handled.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

Same as for Maintenance of Way and Structures, Accounts 1 to 23, inclusive.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 29.)**

See modification of formula set forth on page 28-A.

## Maintenance of Equipment—Continued.

**47 POWER PLANT EQUIPMENT.**

Same as for freight train cars.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.**
**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

Same as Account 25.

## Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

No charge.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion on basis of assigned charges Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Divide as to state and interstate on basis of respective train gross ton miles.

**63 STATION EMPLOYES.**

Divide between state and interstate on basis of train gross ton miles.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**
**65 COAL AND ORE DOCKS.**

No charge.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion on basis of assigned charges to Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Apportion on basis of respective state and interstate gross tons one mile in entire state.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINEHOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**
**90 INTERLOCKS AND BLOCKS AND OTHER SIGNALS—OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATIONS.**
**93 CLEARING WRECKS.**

Locate expenses by classes of trains as far as possible and apportion on basis of respective state and interstate gross ton miles in entire state by classes of trains, i. e., mixed trains, way freight trains and other revenue freight trains. Apportion other expenses on basis of total state and interstate ton miles in state.

**94 TELEGRAPH AND TELEPHONE—OPERATION.**

Apportion on basis of all operating Accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Divide as to state and interstate on basis of respective number tons handled.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.**
**98 OTHER EXPENSES.**

Apportion on basis of assigned charges Accounts 62 to 95, inclusive, excepting Account 94.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 30.)**

See modification of formula set forth on page 28-A.

## Transportation Expenses—Continued.

**99 LOSS AND DAMAGE—FREIGHT.**

Before assigning to line and terminal, this account should be located direct from vouchers to state and interstate, and to line and terminal as far as possible. Unlocated items to be apportioned on the basis of located.

**100 LOSS AND DAMAGE—BAGGAGE.**

No charge.

**101 DAMAGE TO PROPERTY.** **102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Apportion to state and interstate on basis of respective gross tons one mile.

**103 INJURIES TO PERSIONS.**

Locate as far as possible to state and interstate from voucher. All other on basis of gross ton miles.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Apportion to state and interstate on basis of respective gross tons one mile.

## General Expenses.

**106 SALARIES AND EXPENSES—GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES—CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**109 LAW EXPENSES.**
**110 INSURANCE.**
**111 RELIEF DEPARTMENT EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**
**115 GENERAL ADMINSTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.**
**116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**
**113½ VALUATION EXPENSES.**

Apportion to state and interstate on basis of assigned charges to operating Accounts 1 to 105, inclusive.

## St. Louis and San Francisco Railroad—Modification of Formula. (Page 31.)

**BUILDINGS, FIXTURES AND GROUNDS.**

The passenger terminal proportion of maintenance of depot buildings, etc., was all divided in one lump sum on basis of total number of respective state and interstate passengers handled in state, the number of state passengers being multiplied by two to charge for the use of two depots by said passengers, the Interstate passengers being counted once and the Trans-state passengers being eliminated from consideration, for the reason that Trans-state passengers make no use of the depot buildings within the state, or if use of stations is made by such Trans-state passengers, it is non-essential to their transportation through the state.

**ROADWAY TOOLS AND SUPPLIES.**

No charge to Terminal passenger service (see page 21 of formula which assigns Terminal proportion of this expense entirely to freight). The reason for this is that the maintenance of tracks in yards which are used in passenger service are not in any way chargeable to "Terminal" passenger service within the meaning of the formula, for the reason that such Terminal service within the meaning of the formula covers only direct expense incident to handling passengers at entraining and detraining points. The handling of passenger trains in yards before trains are placed for the entraining of passengers, or after passengers detrain, is incidental to preparing the train for "Line" service or taking care of the train after Line service, and is, therefore, wholly chargeable to Line service.

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Same exceptions as to Account 16, Buildings, Fixtures and Grounds. (See above.)

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Apportioned on same basis as the offsetting debit account—Maintaining Joint Tracks, Yards and Other Facilities.

**MAINTENANCE OF EQUIPMENT.**

**STEAM LOCOMOTIVES, REPAIRS, RENEWALS AND DEPRECIATION.**

Passenger proportion divided between State and Interstate on basis of total passengers handled in the State, the number of state

passengers being multiplied by two, each Interstate passenger being counted once and all Trans-state passengers being excluded from consideration for the reason that each state passenger must necessarily both entrain and detrain within the state, each Interstate passenger must either entrain or detrain within the state, and the entraining and detraining of Trans-state passengers is non-essential to their transportation through the state.

**PASSENGER TRAIN CARS—REPAIRS, RENEWALS AND DEPRECIATION.**

Same exceptions as under head of Steam Locomotives, Repairs, Renewals and Depreciation.

## APPORTIONMENT OF TERMINAL PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**
**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**
**12 SNOW AND SAND FENCES AND SNOW SHEDS.**
**13 SIGNALS AND INTERLOCKING PLANTS.**

No charge.

**14 TELEGRAPH AND TELEPHONE LINES.**
**15 ELECTRIC POWER TRANSMISSION.**

Divide for entire state between state and interstate on basis of respective number of total state and interstate passengers using terminals.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Depot buildings, fixtures and grounds at each station to be apportioned on the sum of state and interstate passengers arriving and departing at same. Other charges on basis of total number of respective state and interstate passengers in state.

**17 DOCKS AND WHARVES.**

Apportion to passenger, mail and express on basis of car feet of trains served and divide passenger proportion between state and interstate on respective number of passengers arriving and departing.

**18 ROADWAY TOOLS AND SUPPLIES.**
**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Apportion between state and interstate on basis of assigned charges to Accounts 14 and 16.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Depot buildings, fixtures and grounds at each station to be apportioned on the sum of state and interstate passengers arriving and departing at same. Other charges on basis of total number of respective state and interstate passengers in state.

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

As originally assigned.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**
**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Apportion passenger, mail and express on basis car foot miles and divide passenger proportion between state and interstate on respective number of passengers getting on and off such equipment in state.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

Apportion passenger, mail and express on basis car foot miles of company (home) equipment and divide passenger proportion between state and interstate on respective number of passengers getting on and off such equipment in state.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**

No charge.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same as for Accounts 31, 32 and 33.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipmrent.

**Maintaining Joint Equipment at Terminals—Cr.**

Apportioned on same basis as offsetting debit account, Maintaining Joint Equipment at Terminals.

**Traffic Expenses.**

The Manager of Mail Traffic, of the St. Louis and San Francisco Railroad until January 1st, 1914, reported to the Chief Operating Officer, and the expense of that Department were charged to account 61, Superintendence—Transportation, of which account mail traffic was charged with its car-foot-mile proportion of the passenger proportion; this Department also supervises the handling of the railtroad's own mail, hence, the employment of the basis indicated.

**Transportation Expenses.**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills from which the debits and credits to these two joint facility accounts were made, themselves contained the charge or credit for superintendence.

**STATION EMPLOYES.**

Same exceptions as noted, under Account 16, Buildings, Fixtures and Grounds, on page 31 of formula, in so far as the method of counting number of passengers is concerned.

**STATION SUPPLIES AND EXPENSES.**

Same exceptions as under Account 63, Station Employes.

**MOTORMEN AND ROAD ENGINEMEN.**

Apportioned on same basis as Accounts 81 to 89, inclusive, as shown on page 32 of the printed formula, and exceptions thereto, as noted.

**ENGINEHOUSE EXPENSES—ROAD.**
**FUEL, WATER, LUBRICANTS AND OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**ROAD TRAINMEN.**
**TRAIN SUPPLIES AND EXPENSES.**

Passenger Terminal proportion of these accounts was all divided in one lump sum on basis of total number of respective State

and Interstate passengers handled in the State, the number of state passengers being multiplied by two to charge for two terminal services rendered such passengers, the Interstate passengers being counted once, and the Trans-state passengers being eliminated from consideration for the reason that Trans-state passengers received no Terminal services within the state, or if they received such service it was non-essential to their transportation through the state.

## Maintenance of Equipment—Continued.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

No charge.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**47 POWER PLANT EQUIPMENT.**

Same as Accounts 31, 32 and 33.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.**

Same as Account 25.

**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

Same as originally assigned in bill.

## Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Assign to mail the located expenses of the mail department and divide remainder between state and interstate on respective passenger miles.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, excepting Account 94.

**62 DISPATCHING TRAINS.**

No charge.

**63 STATION EMPLOYES.**

Apportion to mail on basis of time of employes devoted to mail service and divide remainder between state and interstate on respective number of passengers arriving and departing at station.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**
**65 COAL AND ORE DOCKS.**

No charge.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion to mail expenses paid for delivery services and divide remainder between state and interstate on respective number of passengers arriving and departing at the station.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES YARD LOCOMOTIVES.**
**77 OPTG. JT. YDS. AND TERM.—Dr.**
**78 OPTG. JT. YDS. AND TERM.—Cr.**

No charge.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**

Apportion to state and interstate on basis of respective passengers using terminals.

**81 ENGINE HOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**

First apportion to passenger and mail and express on basis of the respective car-foot-miles including all classes of passenger train equipment as ascertained for the apportionment of line expenses and apportion passenger proportion to state and interstate on basis of respective passengers using terminals.

**90 INTERLOCKER AND BLOCK AND OTHER SIGNALS OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**
**93 CLEARING WRECKS.**

No charge.

**Stationery and Printing.**

**"OTHER EXPENSES."**

Same basis of exception as under the head of Superintendence on page 32 of the printed formula.

**DAMAGE TO PROPERTY.**

Same exceptions as under Account No. 63 or page 32 of the printed formula.

**INJURIES TO PERSONS.**

The allocation as between State and Interstate passengers direct not being practicable, this division was made on same basis as Account No. 101, Damage to Property, with the exceptions noted opposite that account.

**OPERATING JOINT TRACKS AND FACILITIES—DR.**
**OPERATING JOINT TRACKS AND FACILITIES—CR.**

Same exceptions as to Account 63 on page 32 of the formula.

## APPORTIONMENT OF TERMINAL PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Divide on basis of assigned charges to Accounts 1 to 105, inclusive, excepting this account.

**95 OPERATING FLOATING EQUIPMENT.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipment.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, excepting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

No charge.

**100 LOSS AND DAMAGE—BAGGAGE.**

Before assigning to line and terminal, locate direct to state and interstate from vouchers. Common to be divided on basis of located.

**101 DAMAGE TO PROPERTY.**

Divide between state and interstate on basis of respective passengers handled at terminal where damage occurs.

**102 DAMAGE TO STOCK ON RIGHT OF WAY.**

No charge.

**103 INJURIES TO PERSONS.**

Locate as between state and interstate passengers injured from vouchers. Divide other injuries on same basis as for Account 101.

**104 OPERATING JOINT TRACKS AND FACILITIES—Dr.**

Divide on basis of respective number state and interstate passengers handled at all terminals in state.

**105 OPERATING JOINT TRACKS AND FACILITIES—Cr.**

As originally assigned on bill.

### General Expenses.

**106 to 116, ALL GENERAL ACCOUNTS.** **113] VALUATION EXPENSES.**

Divide on basis of assigned charges to Accounts 1 to 105, inclusive.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 34.)**

**Maintenance of Way and Structures:**

**BUILDINGS, FIXTURES AND GROUNDS.**

Apportionment not made for each station separately. The principle laid down in the formula was followed with the exception that the State and Interstate net L. C. L. tonnage was aggregated for each class for all stations within the state, and the division made on basis of these aggregate figures.

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Apportionment made for all stations in the state in the aggregate and not by individual stations.

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Apportioned on same basis as debit account "Maintaining Joint Tracks, Yards and Other Facilities."

## Maintenance of Way and Structures:

**1 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**
**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**
**12 SNOW AND SAND FENCES AND SNOW SHEDS.**
**13 SIGNALS AND INTERLOCKING PLANTS.**

Apportion to state and interstate on basis of respective gross tons of loaded cars handled on terminal tracks.

**14 TELEGRAPH AND TELEPHONE LINES.**
**15 ELECTRIC POWER TRANSMISSION.**

Apportion to state and interstate on basis of respective net tons of freight received and delivered at all stations in state.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Depot buildings, fixtures and grounds at each station to be apportioned on basis of state and interstate net tons of L. C. L. Other charges on basis of state and interstate net tons handled at all stations in state.

**17 DOCKS AND WHARVES.**

Divide between state and interstate on basis of net tons freight handled over.

**18 ROADWAY, TOOLS AND SUPPLIES.**
**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER ESPENSES.**

Divide between state and interstate on basis of assigned charges to Accounts 2 to 17, inclusive.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Dr.**

For tracks apportion to state and interstate on basis of respective gross tons of loaded cars handled on terminal tracks at each station. For depot buildings, fixtures and grounds apportion to state and interstate on basis of respective net tons L. C. L. freight handled at each station. Other charges on basis of total net tons handled at all stations in state.

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Cr.**

As originally assigned.

## Maintenance Equipment:

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**
**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Divide as between state and interstate on basis of respective gross tons of loaded cars originating and terminating at all stations.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

No charge.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**
**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Divide between state and interstate on total respective gross tons of loaded cars received and forwarded.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Divide as to state and interstate on basis of respective number of gross tons where cars are handled and net tons where cars are not handled.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

On basis of assigned charges in Accounts 1 to 23, inclusive.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**Maintaining Joint Equipment at Terminals—Cr.**

Apportioned on same basis as debit account "Maintaining Joint Equipment at Terminals."

**Transportation Expenses:**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills from which the debits and credits to these two joint facility accounts were made themselves contained a charge or credit for Superintendence.

**STATION EMPLOYES.**

Apportioned on basis of the printed formula with the exception that the specific expense of cotton handling labor and cotton watchman was charged direct to Interstate, all cotton handled by the Railroad in the State of Arkansas being Interstate traffic.

**Accounts 67 to 78. YARD EXPENSES.**

Apportioned in accordance with the principle laid down in the printed formula with the exception that expenses incurred in all yards in Arkansas were divided in one lump sum on basis of the classified aggregate of cars handled in all yards in the state.

**Accounts 78 to 89, inclusive.**

Same exceptions as under Accounts Nos. 67 to 78, inclusive—Yard Expenses.

**Accounts 91, 92 and 93.**

Same exceptions as to Accounts 67 to 78, inclusive—Yard Expenses.

## Maintenance of Equipment—Continued.

**47 POWER PLANT EQUIPMENT.**

Divide between state and interstate on total respective gross tons of loaded cars received and forwarded.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—Dr.**

Divide as between state and interstate on basis of respective gross tons of loaded cars originating and terminating at all stations.

**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—Cr.**

Same as originally assigned in bill.

## Traffic Expenses:

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Divide between state and interstate on basis of net ton miles.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

No charge.

**63 STATION EMPLOYES.**

Apportion to state and interstate (a) clerical expenses on respective number of consignments received and forwarded (b) platform and freight house expenses on respective number of L. C. L. tons handled, and (c) yard expenses on respective number of loaded cars received and forwarded at each station. (d) Other expenses on basis of assignment of expenses under a, b and c combined.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

Apportion to state and interstate on basis of respective net tons in entire state.

**65 COAL AND ORE DOCKS.**

Apportion between state and interstate on basis of respective net tons over each dock.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion on basis of assigned charges to Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES YARD LOCOMOTIVES.**
**77 OPTG. JT. YDS. AND TERM. Dr.**
**78 OPTG. JT. YDS. AND TERM. Cr.**

Consider each station separately and apportion on number of respective state and interstate cars of freight received and forwarded. Cars containing both classes of freight to be counted one-half to each class.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINE HOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**

Consider each station separately and apportion on basis of respective state and interstate cars of freight received and forwarded. Cars containing both classes of freight to be counted one-half to each class.

**90 INTERLOCKERS AND BLOCK SIGNALS—OPERATION.**

No charge.

**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**
**93 CLEARING WRECKS.**

Consider each station separately and apportion on basis of respective state and interstate cars of freight received and forwarded. Cars containing both classes of freight to be counted one-half to each class.

**Stationery and Printing.**

"OTHER EXPENSES."

Exceptions on same basis as to Account 61, Superintendence, on page 35 of the formula.

DAMAGE TO PROPERTY.

Divided between State and Interstate on basis of respective loaded cars containing each class of freight handled at all terminals within the state in the aggregate.

INJURIES TO PERSONS.

Entire Terminal freight charge to this account divided on same basis as Account 101, Damage to Property.

OPERATING JOINT TRACKS AND FACILITIES—CR.

Divided on same basis as debit Account, "Operating Joint Tracks and Facilities."

## APPORTIONMENT OF TERMINAL FREIGHT BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Divide on basis of assigned charges to Accounts 1 to 105, inclusive, excepting this account.

**95 OPERATING FLOATING EQUIPMENT.**

Divide as to state and interstate on basis of respective number of gross tons where cars are handled, and net tons where cars are not handled.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, excepting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

Before assigning to line and terminal, locate direct to state and interstate from vouchers. Common to be divided on basis of located.

**100 LOSS AND DAMAGE—BAGGAGE.**

No charge.

**101 DAMAGE TO PROPERTY.**

Divide between state and interstate on basis of respective loaded cars handled at terminals where damage occurs.

**102 DAMAGE TO STOCK ON RIGHT OF WAY.**

No charge.

**103 INJURIES TO PERSONS.**

Locate as between state and interstate freight injured from vouchers. Divide other injuries on same basis as for Account 101.

**104 OPERATING JOINT TRACKS AND FACILITIES—Dr.**

Divide on basis of respective loaded cars handled at all terminals in state.

**105 OPERATING JOINT TRACKS AND FACILITIES—Cr.**

As originally assigned on bill.

### General Expenses:

**106 to 116 ALL GENERAL ACCOUNTS.** **113½ VALUATION EXPENSES.**

Divide on basis of assigned charges to Accounts 1 to 105.



77

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 37.)**

**Apportionment of Company or Non-Revenue Service Costs.**

Amend paragraph No. 1 to read—"Add the non-revenue tons and tons one mile to the revenue tons and tons one mile and ascertain the percentage proportion of each." The **net** tons and **net** ton miles have been used in this instance.

Amend paragraph No. 2 to read—"Add the non-revenue passengers and passengers one mile to the revenue passengers and passengers one mile and ascertain the percentage proportion of each."

Amend paragraph No. 5 to read—"xxx On basis of the assigned charges remaining in Maintenance of Way xxx."

The mail and express proportion of passenger expenses was ascertained after the adjustment of non-revenue service expenses had been made between freight and passenger services.

## FORMULA FOR THE APPORTIONMENT OF COMPANY OR NON-REVENUE SERVICE.

1. Add the non-revenue tons one mile (see Note), to the revenue tons and revenue tons one mile, similarly divided, and ascertain the percentage proportion of each.

2. Add the non-revenue passengers one mile, to the revenue passengers and revenue passengers one mile, and ascertain the percentage proportion of each.

3. Deduct from line and terminal, state and interstate freight expenses, as apportioned and assigned under all Maintenance of Way and Structure accounts, Maintenance of Equipment accounts and Conducting Transportation accounts, the percentage proportion ascertained as above for non-revenue freight, which sum will represent the expense of handling such non-revenue freight.

4. Deduct from line and terminal, state and interstate passenger expenses apportioned and assigned under all Maintenance of Way and Structure accounts, Maintenance of Equipment accounts and Conducting Transportation accounts, the percentage proportion ascertained as above for non-revenue passengers, which sum will represent the expense of handling such non-revenue passengers.

5. Add together the amounts thus representing the expense of non-revenue freight and passenger, respectively, and reapportion the total (line and terminal, state and interstate) to revenue freight, revenue passengers, and mail and express respectively, on basis of the assigned remaining in Maintenance of Way and Structure accounts, Maintenance of Equipment accounts and Conducting Transportation accounts, after the deduction as provided in Paragraphs 3 and 4 have been made.

**Note.**—Roads not having the gross ton mile unit for freight will use the net ton mile unit.

**Apportionment of the Value of Property Between Freight and Passenger, Line and Terminal, and Subdivision Between Intrastate, Interstate and Mail and Express Traffic.**

The original cost value of roadway and structures, as determined by, and under the direction of, the Chief Engineer of the St. Louis and San Francisco Railroad, has been apportioned, first, to the various classes of service, and subsequently to the various classes of traffic, on basis of the assignment of transportation expenses to each class of service and traffic, under the provisions of this formula, as modified, and as described and set forth in Exhibits Nos. 2 to 17, inclusive.

The theory upon which results of the division of transportation expenses were used as a basis on which to divide the value of roadway and structures, is that the transportation expenses themselves have been divided in minute detail on basis of the use made of such roadway and structures, and that, therefore, the apportionment of such expenses itself reflects the use made of the property.

From the value of roadway and structures divided on basis of transportation expenses, as set forth above, there has been excluded the value of all buildings and facilities (including shop machinery and tools) used in the repair of locomotives, cars and work equipment. The value of these buildings and facilities, machinery and tools, has been divided on basis of the assignment of the cost of repairs, renewals and depreciation of locomotives, cars and work equipment. The division of the values of locomotives, cars and work equipment has been made as provided for in the formula.

No portion of the value of general offices, general stores or general shops (none such located in the State of Arkansas) has been included in the valuation of the property, nor has any allowance for working fund been included in such valuation.

## FORMULA FOR THE APPORTIONMENT OF PROPERTY VALUES TO THE STATE AND BETWEEN CLASSES OF TRAFFIC.

### Apportionment of Value of Roadway and Structures between Freight and Passenger and Line and Terminal.

Values are to be located by the Engineering Department to individual stations, other individual terminal facilities and tracks and to certain convenient sections of line. The value of individual station facilities and tracks is to be apportioned between freight and passenger and between line and terminal in the ratio of the percentages determined for the apportionment of the maintenance of such facilities. Other values common to freight and passenger or to line and terminal or common to all are to be apportioned in accordance with the apportionment made of the maintenance charges of the same facilities, except that line values common to freight and passenger are to be apportioned on the basis of revenue train miles including mixed train miles, which mixed train miles are to be split one-half to freight and one-half to passenger.

### Apportionment of Value of Roadway and Structures between State and Interstate and Mail and Express.

Apportion between state and interstate and mail and express in the ratio of the assigned maintenance of way and structures expense after the company material adjustment has been made, treating freight and passenger separately.

**Note.**—General offices, general stores and general shops are to be included. Assignment of which is to be made to the state on basis of assignment of maintenance expenses of these buildings to the state.

### Apportionment of Locomotive Values to the State.

(a) Ascertain the mileage in the state and without the state on all owned locomotives making mileage during the test period. Apportion the values of such individual locomotives to the state in ratio of the mileage in the state to the total mileage made by such locomotives.

(b) Apportion the total locomotive values for the entire line in the ratio of the locomotive value assigned to the state as per paragraph "a." This is done in order to take care of the locomotives out of service.

### Apportionment of Locomotive Values between Freight and Passenger.

Ascertain the mileage in the state by individual locomotives separated according to (a) freight, (b) passenger and (c) switching. Apportion the value of such individual locomotives as assigned to the state as above provided for between freight, passenger and switch service in the ratio of the mileage. Total these values for the entire state and determine the percentage of value assigned to each class of service, which percentages shall then be applied to the value determined as per preceding paragraph "b," thus determining the total locomotive value assignable to freight, passenger and switch, respectively. Then apportion the switch value between freight and passenger in ratio of the time in freight-switch service to the time in passenger-switch service.

### Apportionment of Freight Car Values to the State.

Apportion to the state a car mileage prorate of the total value of freight car equipment.

### Apportionment of Passenger Car Values to the State.

Apportion to the state a home car mileage prorate of the total value of home passenger car equipment. Apportionment to be made by classes of passenger cars where deemed necessary in order to meet special conditions.

### Apportionment of Work Equipment Values to the State.

Apportion to the state in the ratio of the car mileage of such equipment in the state to the entire line.

### Apportionment of Work Equipment Values between Freight and Passenger and State and Interstate and Mail and Express.

Work equipment values as assigned to the state to be apportioned to freight and passenger, state and interstate and mail and express on the basis of the assigned charges in Account 43.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 39.)**

See modifications detailed on page 38-A.

**Apportionment of Freight Locomotive Values between State and Interstate.**

Apportionment to be made between state and interstate in the ratio of the assigned locomotive repairs in Account 25.

**Apportionment of Passenger Locomotive Values between State and Interstate and Mail and Express.**

Apportion between state and interstate and mail and express in the ratio of the assigned locomotive repairs in Account 25.

**Apportionment of Freight Car Values between State and Interstate.**

Apportionment to be made between state and interstate in the ratio of the assigned repairs in Account 34.

**Apportionment of Passenger Car Values between State and Interstate and Mail and Express.**

Apportion between state and interstate and mail and express in the ratio of the assigned repairs in Account 31.

**Apportionment of Working Fund to the State and between Classes of Traffic.**

Working fund shall be determined by each line based on its own individual conditions for the entire line. Apportionment to be made to the state in the ratio of the assigned operating expenses. Further apportionment between classes of traffic to be made in ratio of the operating expeness assigned to each class of traffic.

# EXHIBITS 2-61

# NOT

# SUITABLE

# FOR

# MICRO-

# FILMING

# EXHIBITS A-Z 1

# NOT SUITABLE FOR MICRO-FILMING

EXHIBIT No. 1

Office Supreme Court, U. S.
FILED
FEB 17 1916
JAMES D. MAHER
CLERK

252

No. ~~648~~

# Formula used in the Apportionment of Revenue, Expenses and Property to Interstate and Intrastate Passenger and Freight Traffic in the

# ARKANSAS RATE CASE

By the

## ST. LOUIS & SAN FRANCISCO RAILROAD.

The Committee appointed to formulate and recommend a plan for the apportionment of operating costs between freight and passenger service subdivided between interstate and intrastate, beg leave to submit the subjoined formula as conforming as nearly as may be to the rule laid down by the Supreme Court of the United States to the effect that the apportionment of expenses should follow the use of the property as closely as possible.

In submitting this formula, the Committee desire to acknowledge the valuable aid and counsel of the following gentlemen, who co-operated with the Committee in the preparation of the formula:

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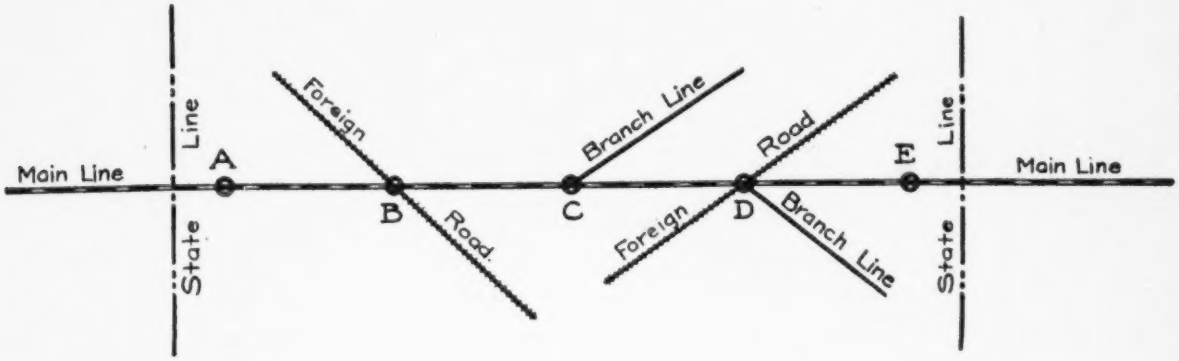
**ILLUSTRATIVE DIAGRAM OF THE DISTINCTION BETWEEN "LINE" AND "TERMINAL" TRAFFIC AND EXPENSES AT VARIOUS CLASSES OF STATIONS, AS USED IN THIS FORMULA.**




A. Local Station.

B. Junction with Foreign Road. Interchange Point.

C. Junction with Branch Line.

D. Junction with both Foreign Road and Branch Line.

E. Division Terminal. Local.

Expenses for Train Orders, Crossing Flagmen, Passenger Switching and Interlockers are "Line." Otherwise

All expense at "A" station is "Terminal."

All expense at "B" station is "Terminal."

All expense attaching to traffic **passing through** "C" station going to and coming from Branch Line points is "Line." All other, i. e., that which originates or terminates at this station is "Terminal."

All expense attaching to traffic **passing through** "D" station to or from Branch Line points is "Line." All other, including that going to or from Connecting Foreign Road, is "Terminal."

All expense attaching to traffic **passing through** "E" station is "Line." All other is "Terminal."

## EXPLANATORY.

"Line" expenses are those which attach to, are directly connected with, or are occasioned by the transportation (movement) of traffic from place of receipt (one terminal) to the point of delivery (another terminal). Any service performed in the movement between these termini is a line service and any expense incident thereto constitutes a line expense.

"Terminal" expenses are those which attach to, or are connected with or occasioned by the securing, receiving, loading or otherwise preparing traffic for movement, and the unloading, delivery and other outlay incident to the disposition of the traffic at delivering or terminal station. Any service incident thereto and any expense incurred in connection therewith constitutes a "terminal" expense.

Examples: The expense of making up of a passenger train at a terminal is a line expense because it is a service performed for the movement of passengers throughout the entire route, and would be necessary even if there were no passengers to be moved from the terminal. The stopping of a passenger train at any station to let on or off passengers constitutes a terminal expense because it serves the public at that station. The switching, distribution and collecting of freight cars at any station is a terminal expense for the reason that it is occasioned by the existence of such station. A junction with a foreign line does not alter the case because the station is the terminal for such freight as comes from or goes to such foreign lines. Traffic **passing through** a station which is a junction with a **branch line,** going to or coming from branch line points even though handled at such station is line because it would have required the same service had there been no station at that point.

# GENERAL OUTLINE OF PLAN FOR ACCUMULATING DATA AND DISTRIBUTING EXPENSES IN ORDER TO ASCERTAIN, AS NEARLY AS POSSIBLE, THE COSTS OF TRANSPORTING AND HANDLING INTRASTATE AND INTERSTATE FREIGHT AND PASSENGER TRAFFIC.

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## SCOPE OF PLAN.

The plan contemplates the allocation or apportionment of expenses into the following subdivisions, and, as far as possible, in the order specified, viz.:

(1) The apportionment of expenses as between States.

(2) Separation of entire expenses in the State under review between "Terminal," or station expense, and "Line" or hauling expense.

(3) Apportionment of both "Line" and "Terminal" expenses between Freight and Passenger.

(4) Apportionment of freight expenses, both "Line" and "Terminal," between Intrastate and Interstate traffic.

(5) Apportionment of passenger expenses, both "Line" and "Terminal," between Intrastate and Interstate traffic.

## "LINE" EXPENSES.

Line expenses, referred to under Item 2, are such as are necessary to or are incurred exclusively, or substantially exclusively, in the hauling of traffic or operating road train service through and within the state, and should include the following classes of maintenance and operation expenses:

## MAINTENANCE OF LINE.

Maintenance of main and passing tracks, tracks at division or train terminals used exclusively, or nearly exclusively, in making up and breaking up trains at points where trains are started and terminated, in reclassifying and storing through cars and through trains and passing them through yards, coach cleaning tracks, tracks used for storing caboose cars and wrecking outfits, tracks to and from coal chutes, shops, engine houses and turntables at points where no regular switching service is maintained, and suitable proportion of such tracks at points where switching service is maintained, based on relative use made thereof by Line and Terminal operations; maintenance of bridges, trestles, culverts, signals, crossings and signs pertaining to tracks and structures classed under this head; maintenance of right of way, snow and sand fences. Maintenance of buildings, structures and other facilities devoted exclusively to road train operation; also suitable use proportion of such buildings, structures and facilities as are regularly used jointly in "Line" and "Terminal" operation. Line proportion of maintenance of road and switch locomotives; also "Line" proportion of maintenance of traffic and work cars.

## OPERATION OF LINES.

Expense of operating trains while en route, and through trains through terminals; also expenses at Branch Line Junctions which attach to traffic passing through such junctions going to and coming from points beyond; also including suitable proportion of supervision, casualties, damages, etc.

## "TERMINAL" EXPENSES.

Terminal expenses are such as are incurred in originating, terminating and handling traffic at stations and to and from trains on which transported, including the reception and delivery of traffic interchanged with foreign lines; also transferring cars, freight and passengers at junction points with foreign lines. (Such transfers to Branch Lines are "Line.") The following classes of maintenance and operation expenses are to be included under this head:

## MAINTENANCE OF TERMINALS.

Maintenance of depot, house, storage, industry, team, transfer, scale, stockyards tracks, tracks used exclusively, or substantially exclusively, for classifying station and transfer cars (tracks used for handling traffic passing through branch line junctions and through trains requiring reclassification, should be classed

**Administration of Plan:**

Classification of tracks as between "Line," "Terminal," "Freight," "Passenger," and "Common" was not made by Superintendents, but was handled in the following way. Special representative was sent out on each Division to confer with each Section Foreman and to classify all of the tracks under his charge. Each Section Foreman's time and material books were so arranged that the charges for labor and material on each separate track, or class of tracks, were entered therein each day.

The Company keeps separate, as a matter of its regular accounting, the charges for maintenance of all buildings, structures, etc., and these structures were classified as between Line and Terminal, Freight and Passenger, in the Division Superintendent's offices, the maintenance charges for each being set up separately under proper classification.

as "Line"). Suitable use proportion of tracks leading to and from, also at, coal chutes, water tanks, engine houses, shops, turntables and repair yards. Maintenance of terminal buildings and structures, such as freight and passenger depots, warehouses, platforms, etc., not occupied or exclusively used by employes, chargeable to "Line" operations, and suitable use proportion of such as are used in common for "Line" and "Terminal" operations. Maintenance of loading, unloading and transferring platforms, stockyards, elevators, coal and ore docks, scales, hay houses, and all other facilities used in originating and destination terminal operations; also terminal operation proportion of maintenance of locomotives and traffic and work cars.

## OPERATION OF TERMINALS.

Under terminal operations should be classed all expenses incurred in operating the terminal facilities previously described. There should be included all station expense other than that devoted to "Line" operations. All yard expenses incidental to switching station cars to and from trains, depots, warehouses, industries, connecting lines, stockyards and elevators (not including the work of reclassifying through trains at intermediate terminals, nor the switching or handling of traffic passing through branch line junctions going beyond), and suitable proportion of supervision, casualties, damages, etc. Under this head should also be classed all traffic expenses incurred in solicitation of passengers and freight and originating traffic; also weighing and demurrage bureaus, traffic associations, etc., and there should also be included a suitable proportion of general expenses.

## ADMINISTRATION OF THE PLAN.

For the purpose of compiling the necessary data, superintendents are required to classify the tracks, buildings, structures and other facilities at each station and terminal between:

(a) Line tracks and facilities.
(b) Terminal tracks and facilities.
(c) Tracks and facilities used in common.

Each of these classes of tracks and facilities should be further subdivided as between (1) exclusive freight tracks and facilities; (2) exclusive passenger tracks and facilities, and (3), tracks and facilities used in common in freight and passenger service. In making these classifications, the primary purpose and usual use of the track or facility should govern in its assignment, and the exceptional or only occasional uses in the other classes of service ignored.

In the daily and monthly distributions of labor and material charges, the classifications so made must be strictly followed, and in order that a proper assignment of expense can be made to the various subdivisions specified, it will be necessary to distribute charges and build up separately the maintenance expense of each building, structure and facility, also each of the separate classes of tracks mentioned, at each terminal. To illustrate: It is desired to bring out the maintenance expense incurred at each station, separated as between the following tracks:

| CLASS OF TRACK. | Use of Tracks. | | |
|---|---|---|---|
| | Exclusive Freight (1). | Exclusive Passenger (2). | Common to Freight and Passenger (3). |
| (a) Train tracks consisting of main and passing tracks... | ..... | ..... | ..... |
| (b) Station tracks consisting of all station service tracks not used for train or engine service..... | ..... | ..... | ..... |
| (c) Yard tracks consisting of classification tracks and storage tracks..... | ..... | ..... | ..... |
| (d) Shop tracks consisting of tracks to and about shops, also Storehouse and repair tracks..... | ..... | ..... | ..... |
| (e) Engine Houses, Turntables, Wye, Fuel and Water Tracks..... | ..... | ..... | ..... |

**Administration of Plan:**

**Distribution of Terminal Operation Expenses:**

The expenses for each station were kept separate, and subdivided as provided for in the formula, on basis of the time study made by the agent at each station. In the case of yard expenses, a time study of yard operations as between Freight, Passenger, and Line and Terminal, was made at each individual yard, but the expenses of each yard were not kept separate, the division of total yard expenses within the state being made on basis of an aggregate of the time study made at all yards within the state.

In distributing terminal operation expenses, the following subdivisions should be kept for each station:

All expenses chargeable to each of Accounts 63 to 78, inclusive, should be directly assigned to either of the following classes, viz.:

(1) Exclusive Freight.
(2) Exclusive Passenger.
(3) Common to Freight and Passenger.
(4) Mail.

The expenses assigned to each of these classes should, as far as possible, be further subdivided as between (a) "Line" expense, (b) "Terminal" expense, and (c) common to line and terminal, as heretofore defined. The freight station, clerical and labor expenses should be separated as between office, warehouse and other expenses, so that each of these three classes of expense can be apportioned to Intrastate and Interstate freight separately on an appropriate unit basis.

## EXPENSES OF LOCAL AND THROUGH TRAINS.

In order that a representative separation of freight train expenses between local and through trains can be made, superintendents' offices and fuel supervisors will arrange to keep separate account of the wages paid and fuel consumed by the following classes of trains, viz.: Way freight, other freight, mixed, and passenger. The enginemen's and trainmen's wages of each class of trains should be stated separately.

**Note 1.**—The order of assignment of expenses contained herein may be deviated from to accord with most convenient method, so long as the results reached are representative.

**Note 2.**—Mixed train and locomotive miles are apportioned to freight and passenger in the ratio that the respective freight and passenger gross ton miles in mixed trains bear to the total gross ton miles of such trains.

**Note 3.**—The term "Locate direct," as used throughout the formula contemplates such an analysis of expenditures as to conform to the actual location of all items which are exclusive in their nature.

**Note 4.**—Under assignment of "Expenses to States," the term "Common" used in connection with the Maintenance of Way and Structure accounts refer particularly to work performed in common and to overhead expenses and not to the expense attending work across state lines which should be located direct to states benefited on basis of track mileage involved.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 6)**

**Assignment of Revenues to the State of Arkansas:**

| | |
|---|---|
| Straight Freight and Passenger Revenues. | Gross intrastate straight freight and passenger revenues were assigned to Arkansas direct from the Railroad's regular accounting records. All deductions from, or additions to gross revenue in the nature of adjustments, refunds, overcharge claim payments, switching absorptions, undercharges and kindred items, were analyzed, each item separately, and the result of this analysis applied against the gross revenue originally set up in the Railroad's regular accounting records. |
| | Gross Interstate straight freight and passenger revenues were assigned to Arkansas on the following basis: Gross revenue accruing to the St. Louis & San Francisco Railroad for hauls between each station in Arkansas and each station on its Line in other States was tabulated separately, as was also the gross revenue accruing to the Railroad for its entire haul, between each pair of stations on its Line, from traffic which passed through Arkansas enroute, these tabulations, being made from the regular accounting records. Analysis was made of each item of adjustment covering refunds, overcharges, switching absorptions, undercharges and kindred items, as in the case of Intrastate revenue, and each separate item of adjustment applied directly against the road haul to which it attached, between each pair of stations. After applying these adjustments, the equated mileage prorate provided for in the original printed formula was made, with the exception that carload and less than carload freight was not treated separately. |
| Excess Baggage Revenue. | Intrastate located directly to Arkansas. |
| | Interstate prorated between Arkansas and other States on a flat mileage basis, each individual haul between two given points being treated separately. |
| Express Revenue. | The Express Company operating over the lines of the St. Louis & San Francisco Railroad had not made any actual assignment of revenues to Arkansas by individual railroads, so that such actual assignment to that State was not available. |
| | The contract of the St. Louis & San Francisco Railroad with the Express Company now, and previously, operating over its lines, carries, and has carried in the past, guarantee of a minimum payment to the Railroad per mile of road operated over by the Express Company. These guarantees vary with individual express routes, and are assumed to be relatively indicative of the earnings of the Railroad on the various express routes. In assigning express |

Express Revenue—Continued.

revenues to Arkansas, these mileage guarantees have been applied to the mileage of each route on the entire railroad, and the guarantee earnings for Arkansas and other States determined upon a mileage basis of individual routes for such States. The resultant guarantee earning figures for Arkansas and other States have been used in determining the percentage relation of such guarantee earnings in Arkansas to the guarantee earnings of the railroad as a whole, and the percentage of such guarantee earnings assignable to Arkanas has been applied to the total actual expresss earnings of the St. Louis & San Francisco Railroad, the amount so obtained being credited to Arkansas as its proportion of actual express earnings.

Other Passenger Train Revenue. Revenues of this character when earned entirely within Arkansas were all credited to that State. When earned partially in Arkansas and partially in other States, assignment to Arkansas was made upon a road mileage prorate based on the haul governing individual items of earnings. The assignment between Intrastate and Interstate was made upon the same principle, each separate item of earnings being analyzed.

Switching Revenue. All switching revenue earned in Arkansas was credited to that State. The St. Louis & San Francisco Railroad earns no switching revenue for services across the State Lines of Arkansas. The classification of these earnings in Arkansas between Intrastate and Interstate was made on basis of the road haul to which the switching attached. In the case of switching revenue collected on shipments on which the St. Louis & San Francisco Railroad secured no road haul, the records of the carriers for whom the switching was performed were examined and the classification between Intrastate and Interstate made upon basis of the road haul enjoyed by such carriers. Industrial switching was all classified as Intrastate.

Each individual item of switching revenue was analyzed and classified as above. Debits to this account in the nature of switching paid other companies were classified as between Intrastate and Interstate in the same manner as is indicated above covering switching earned.

Miscellaneous Transportation Revenue. Each item of earnings of this character was analyzed separately. Such items as were earned within the State of Arkansas were all credited to that State. Of such items as were earned partially in Arkansas and partially in other States, Arkansas was assigned a straight mileage prorate, each item being treated separately. The classification between freight and passenger was made on basis of an actual allocation. Where the items attached themselves to a road haul, either freight or passenger, the classification between

Miscellaneous Transportation Revenues—Continued.

Intrastate and Interstate was made on basis of the road haul to which the item attached.

## BASES FOR THE APPORTIONMENT OF REVENUE OF STATES, TO FREIGHT AND PASSENGER SERVICE, AND TO INTRASTATE AND INTERSTATE TRAFFIC.

PRIMARY ACCOUNTS.

**Revenue from Transportation.**

| | | |
|---|---|---|
| 1 | Freight Revenue. | Assign intrastate revenue direct. Apportion interstate revenue on basis of mileage prorate, including equivalent mileage for terminal costs.<br><br>**FORMULA.**<br><br>Equivalent mileage for terminal costs is ascertained as follows: It is assumed, first, that the terminal cost per ton of state freight is neither more nor less than the terminal cost of interstate freight at the same station for carloads or less than carloads, respectively; second, that the line cost per gross ton mile of state freight is neither more nor less than the line cost of interstate or trans-state freight on the same train for either carloads or less than carloads; third, that as an average the terminal cost per ton on interstate freight going into, coming out or passing through a state is the same at both terminals and the same as the average terminal cost on interstate freight within the state for carloads and for less than carloads, respectively.<br><br>Divide the ascertained terminal cost per ton of carload and less than carload freight, respectively, by the line cost per ton mile, and the quotient will be the equivalent of the terminal cost expressed in ton miles. Multiply these equivalent ton miles by the number of terminal tons of interstate freight within the State (both originating and terminating) and add the product to the total ton miles of interstate freight (including trans-state) hauled within the State, carloads and less than carloads being treated separately. Make the same computation in connection with the number of terminal tons and number of ton miles of the same freight outside the State. The two results thus reached will form the basis of the prorate proportion of the interstate freight revenue which is to be credited to the State. |
| 2 | Passenger Revenue. | Assign revenue on intrastate passenger direct. Apportion interstate passenger revenue on basis of straight mileage prorate, including equivalent mileage for terminal cost.<br><br>**Note.**—The same principle applies to the division of passenger interstate revenue as to freight under Account 1. That is to say, the average terminal cost per passenger in the State should be reduced to the equivalent of passenger miles and applied both within and outside the State to the number of terminal interstate passengers traveling in and through the State, thus forming a basis for a prorata apportionment of the interstate passenger revenue. |
| 3 | Excess Baggage Revenue. | Same as Account 2. |
| 4 | Parlor and Chair Car Revenue. | Assign intrastate revenue direct. Apportion interstate on straight mileage prorate. |
| 5 | Mail Revenue. | Assign according to route. No division between intrastate and interstate. (See Note under Account 6.) |
| 6 | Express Revenue. | As assigned and reported by the Express Company, both as to intrastate and interstate.<br><br>**Note.**—No attempt is made to apportion either mail and express revenue or mail and express expenses as between intrastate and interstate, but that so far as these items are concerned the method adopted in previous rate cases is to be followed; that is to say, deduct from "Line" and "Terminal" passenger expenses the amount determined by the Formula as assignable to Mail and Express, making no division between intrastate and interstate. |
| 7 | Milk Revenue on Passenger Trains. | Locate to State direct. Interstate to be apportioned on mileage prorate. |
| 8 | Other Passenger Train Revenue. | Locate as far as possible and divide unlocatable items on most appropriate available units. Same rule to be followed in subdivision between intrastate and interstate. |
| 9 | Switch Revenue. | Locate to State in which service is performed, dividing switching across State lines equally, except where exceptional conditions require a different division in order to be equitable. Locate to freight or passenger according to class of equipment and divide between intrastate and interstate in accordance with decision Interstate Commerce Commission Docket 1637, West Texas Fuel Co. vs. Texas & Pacific R. R. et al., 15 I. C. C. R-443; that is, the credit to switching revenue should follow the class of business switched. |
| 10 | Special Service Train Revenue. | Locate to State. Apportion interstate on basis of straight mileage prorate. Locate direct as to freight and passenger where possible and apportion common on basis of appropriate unit. |
| 11 | Miscellaneous Transportation. | Locate as far as possible and divide unlocatable items on most appropriate available units. Same rule to be followed in subdivision between intrastate and interstate. |

| | |
|---|---|
| Storage Freight. | The printed formula was followed with the exception that some minor adjustments in the nature of refunds not definitely allocatable as between Intrastate and Interstate traffic were divided between those two classes of traffic on basis of the assignment of actually located items. |
| Storage Baggage. | Assigned on same basis as revenue from Parcel Room Receipts, for lack of necessary data to make assignment prescribed in the printed formula. |
| Car Service. | Same modifications were made in printed formula as in the case of Storage Freight. |
| Joint Facilities Revenue—Dr., and Joint Facilities Revenue—Cr. | The net debit or credit in these two accounts being similar in nature to the earnings on account of Station Privileges, have been assigned on the same basis as the earnings in that account. |

**Income Account.**

Rentals.

All rentals earned and rentals incurred, as properly accrued on the Railroad's books, for the periods covered by Exhibits Nos. 22, 24, 25, 26, 27, have been set up in such exhibits in one lump sum as a net credit for each period (the rental earned in each period having exceeded the rental charges incurred). The rentals earned by the Railroad and treated as set forth herein, consist of items of the following characters:

Rental of Joint Tracks, Depots and Memphis and Van Buren Bridges. (Interstate Commerce Account "Joint Facilities Rent-Income.")

Rentals of Buildings and other property. (Interstate Commerce Revenue Account No. 18.)

Proportion accruing to the St. Louis and San Francisco Railroad, of space rental for sundry concessions in joint stations. (Interstate Commerce Revenue Account No. 21.)

The rentals incurred by the Railroad, and treated as set forth herein, consist of items of the following character:

Rentals of Miscellaneous Joint Tracks and Depots. (Interstate Commerce Account—Joint Facility Rent—Deductions.)

Rental paid for the use of the Kansas City, Fort Scott and Memphis Railway.

All rentals earned or incurred wholly within the State of Arkansas have been credited or charged entirely to that State.

Of rentals earned from, and incurred on account of tracks and other facilities lying partially in Arkansas and partially in other States, there has been assigned to Arkansas its road mileage proportion, based upon the mileage of each individual track or facility. The apportionment of the debits or credits for rental assigned to the State of Arkansas, as hereinbefore described, was made between freight and passenger, and mail and express on basis of actual use of the rented property or facility wherever possible, and where actual use location was not practicable such assignment was made on basis of the assignment of operating charges and credits in Interstate Commerce Accounts Nos. 22, 23, 51, 52, 77, 78, 104, 105, 115, and 116, these being the joint facility operating debit and credit accounts covering the operating expenses of tracks, facilities, etc., the rentals, earned from, or incurred on account of the use of which, were apportioned to Arkansas, as outlined above. These joint facility expense account charges and credits are based upon the use made of each facility by the various classes of service, and reflect such use. Division of these net rentals between Intrastate and Interstate was made, in the case of the freight proportion on basis of respective ton miles of each class, and in the case of the passenger proportion on basis of the respective passenger miles of each class.

One exception to such basis of apportionment of rentals between freight and passenger, Intrastate and Interstate, and mail and express, was made in the case of rentals earned from the use by other carriers of the Memphis Bridge. These rentals were divided between freight and passenger on basis of the freight and passenger train mileage made by St. Louis and San Francisco Railroad trains over the bridge and its auxiliary facilities in the State of Arkansas, and the freight and passenger proportions of this rental credit

so determined were assigned to Interstate traffic. A car-foot mile proportion of the passenger assignment of this credit was allotted to mail and express, based upon the car-foot mileage space, devoted to mail and express in trains passing over the Memphis Bridge and its facilities in Arkansas.

Another exception was made in the division of the rentals paid for the use of the Kansas City, Fort Scott and Memphis Railway (Arkansas proportion assigned upon a road mileage basis). The portion of this rental assigned to Arkansas was divided between freight and passenger on basis of the revenue train miles in each class of service made on the tracks of the Kansas City, Fort Scott and Memphis Railway in Arkansas. The mixed train mileage over the Kansas City, Fort Scott and Memphis Railway in Arkansas, was assigned between freight and passenger on basis of the respective freight and passenger gross ton miles in such trains. The freight proportion of this rental was assigned to Intrastate and Interstate on basis of the respective ton miles of each class hauled over the Kansas City, Fort Scott and Memphis Railway within the State of Arkansas. Of the passenger proportion of this rental charge, a proportion was first assigned to mail and express on basis of the car-foot miles chargeable to mail and express on the Kansas City, Fort Scott and Memphis Railway in Arkansas. The remainder of the passenger proportion of this rental charge was subdivided between Intrastate and Interstate traffic on basis of the respective passenger miles of each class made upon the Kansas City, Fort Scott and Memphis Railway in Arkansas. The train mile, car foot mile, ton mile and passenger mile figures, wherever used in dividing both the Memphis Bridge rental credit and Kansas City, Fort Scott and Memphis Railway rental charge, were those obtained by special tests made during the months of November and December, 1913.

Rentals of buildings and other property (Interstate Commerce Revenue Account No. 18) have been divided between freight and passenger, Intrastate and Interstate, mail and express, as provided for in the printed formula (page seven).

Hire of Equipment.

Items of debit or credit common to freight, passenger, mail and express traffic, were subdivided upon a relative use unit basis as set forth in detail in Exhibit No. 5, and the assignment of equipment values, upon which page seven of the

printed formula provided these common items should be divided, was made upon basis of the same use units. This is not a modification of the principle laid down in the formula, but simply a difference, in following the method prescribed for the application of that principle, in the order in which the assignment should be made.

| ACCOUNTS. | |
|---|---|
| **Revenue from Operations other than Transportation.** | |
| 12 Station and Train Privileges. | All passenger. Locate to State as far as possible and divide unlocated on basis of revenue passenger train miles. Divide as between intrastate and interstate on basis of respective passenger miles in state. |
| 13 Parcel Room Receipts. | Assign to State in which located and divide between intrastate and interstate on respective number of intrastate and interstate passengers using station. |
| 14 Storage Freight. | |
| 15 Storage Baggage. | Assign to State where collected and locate as to intrastate and interstate and to Freight and Passenger according to class of shipment. |
| 16 Car Service. | |
| 17 Telegraph and Telephone Service. | Locate to State according to collections and divide intrastate and interstate on same basis. Apportion to freight and passenger on basis of assigned charges in Account 63 in operating expenses. |
| 18 Rents of Buildings and Other Property. | Locate to State in which situated. After excluding rents derived from mail and express facilities, if any, apportion remainder to freight and passenger subdivided between intrastate and interstate on basis of assigned charges to all M. of W. & S. Accounts 1 to 23, inclusive. |
| 19 Miscellaneous. | Locate to State in which revenue originates. Locate to freight and passenger intrastate and interstate as far as possible and apportion remainder on basis of operating expenses Accounts 106 to 116, inclusive. (General Expenses.) |
| 20 Joint Facilities Revenue—Dr. | Assign to State and to freight and passenger intrastate and interstate as credited on original account. |
| 21 Joint Facilities Revenue—Cr. | Locate to State in which revenue originates and also locate to freight and passenger, mail and express and apportion freight and passenger between intrastate and interstate on basis of assigned charges in corresponding revenue accounts. |
| **Income Accounts.** | |
| Taxes. | Locate State taxes as accrued and divide between freight and passenger and between intrastate and interstate according to the basis used in making assessments; i. e., where valuation of property is the basis of assessment apportion taxes on the basis used by the railroad for the apportionment of property to the above classes, and where revenue is the basis of assessment, apportion taxes on the basis of the assignment of revenue to the above classes. Federal taxes to be apportioned to states, to mail and express and to intrastate and interstate freight and passenger on the basis of assignment of total net income to each class. |
| Outside Operations. | Each outside operation to be considered separately and wherever any of the expenses incident thereto are included in operating expenses, the net balance of such outside operations shall be included in determining the net operating income. Apportionment as to intrastate and interstate freight and passenger to be made on units appropriate to each operation. |
| Hire of Equipment. | Locate to States on basis of mileage of locomotives, Pullman cars and other passenger train cars, freight cars and work equipment, respectively, and make division of all common items between the various classes of traffic (freight, passenger, mail and express, and intrastate and interstate) on basis of assigned equipment values. Pullman car mileage and rentals to be determined for each individual line on which rentals accrue. |
| Joint Facilities Rent—Income.<br>Joint Facilities Rent—Deductions. | Locate to State in which situated and divide between freight and passenger intrastate and interstate on basis of assignment of operating debits and credits to each facility separately. |
| Other Items. | All other items under income statement to be considered on their merits following the general rule of apportionment according to appropriate units. |

**ROADWAY TOOLS AND SUPPLIES:**

**STATIONERY AND PRINTING:**

**"OTHER EXPENSES":**

**MAINTENANCE JOINT TRACKS AND OTHER FACILITIES—Dr. and Cr.**

The common items in these accounts have been assigned on basis of **all** located charges, and not **upon** basis of located labor charges only, as provided in the printed formula.

## Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct wherever possible. Supervision across State Line to be prorated on mileage basis. Common expenses to be apportioned on basis of the assigned charges to all other M. of W. & S. accounts (Accounts 22 and 23 excepted) on the operating divisions to which the supervision applies.

**2 BALLAST.**

Locate direct. Expenses for ballast across State Line to be prorated on mileage basis. Common expenses to be apportioned on the basis of located charges to this account in each State.

**3 TIES.**

Locate direct. Common expenses to be apportioned on basis of located cost of Ties inserted.

**4 RAILS.**

Locate direct. Apportion common expenses on basis of cost of rails laid in respective States.

**5 OTHER TRACK MATERIAL.**

Locate direct. Common expenses to be apportioned on basis of the cost of track material used in respective States.

**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

Locate direct. Work on sections across State Lines to be apportioned on mileage basis. Common expenses to be apportioned on the basis of located.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**
**12 SNOW AND SAND FENCES AND SNOW SHEDS.**
**13 SIGNALS AND INTERLOCKING PLANTS.**

Locate direct. Common expenses to be apportioned on basis of located.

**14 TELEGRAPH AND TELEPHONE LINES.**

Locate direct to State wherever possible. Common expenses to be apportioned on the basis of railroad and joint wire mileage in each State.

**15 ELECTRIC POWER TRANSMISSION.**

Locate direct to State wherever possible. Common expenses to be apportioned on basis of power transmission wire mileage in each State.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct, except General Offices, General Shops and All Stores, which apportion to States as follows:

(a) General Offices on basis of General Expenses (Accounts 106 to 116, inclusive), as assigned.

(b) General Shops and All Stores on basis of total Maintenance of Equipment (Accounts 24 to 52, inclusive), as assigned.

**17 DOCKS AND WHARVES.**

Locate direct.

**18 ROADWAY, TOOLS AND SUPPLIES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of located M. of W. & S. labor charges.

**19 INJURIES TO PERSONS.**

Locate direct wherever possible. Common expenses to be apportioned on basis of located.

**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of M. W. & S. labor charges.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Dr.**

Charge direct to State in which located. Common expenses to be apportioned on basis of located labor charges to facility involved.

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Cr.**

Credit direct to State in which located. Common expenses to be assigned on basis of located labor charges to facility involved.

## Maintenance of Equipment.

**24 SUPERINTENDENCE.**

After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each State, apportion on basis of the aggregate of such charges.

**Maintenance of Equipment:**

**STEAM LOCOMOTIVE REPAIRS, RENEWALS AND DEPRECIATION.**

The St. Louis and San Francisco Railroad had not, during the periods for which an analysis of expenses has been made kept separate detail of running repair costs by individual locomotives. It had, however, kept an accurate record of the classified or general repair costs by individual locomotives. Running repair costs were, therefore, necessarily assigned on basis of the general repair costs. It is not believed that this does any violence to the accuracy of the figures.

Where engines were operated in one class of service only, the general repair costs thereof automatically attached themselves to that class of service. Where engines were operated in two or more classes of service, their general repair costs were necessarily divided between the various classes of service on basis of the mileage made in each. It is not practicable to determine how much of the repair costs of an engine employed in two or more classes of service is actually assignable to each.

The locomotives of the St. Louis and San Francisco Railroad are not permanently assigned to operating divisions, but are quite frequently moved from division to division and from state to state, nor are they all assigned permanently to any one class of service, although the Railroad has a great many engines which are definitely so assigned. In order, therefore, to assign locomotive repair costs to the State of Arkansas, an actual allocation was made to Arkansas and to individual classes of service wherever an individual engine performed all of its service within that state or in one class of service. The repair costs of engines performing service both in Arkansas and in other states, and in two or more classes of service, were assigned to Arkansas and the various classes of service on basis of average mileage repair costs.

The plan employed in accomplishing this was as follows: The general repair costs between the last two general overhaulings were determined for each locomotive in service on the entire railroad. The mileage in each class of service for all locomotives was also ascertained. The general repair costs of engines making all their mileage between the last two general overhaulings in one class of service, together with such mileage, was charged to that particular class of service. The general repair costs between the last two general overhaulings of engines employed in more than one class of service were prorated between these classes of service on basis of the mileage made in each, and the resultant division of repair costs and the mileage in each class of service charged to each respective class of service. In this way a total cost and

total mileage was built up, and an average cost per mile run in each class of service determined. This entire road average cost per mile run in each class of service was applied to the entire road mileage in each class of service during the year ended June 30th, 1913, bringing out on this relative basis the average cost for general repairs to locomotives in each class of service per mile run. This average cost per mile run was applied against the **actual** mileage made on the entire railroad in the respective classes of service during the year ended June 30th, 1913, and a relative repair total cost for each class of service thus determined.

The percentage relation of this relative repair cost in each class of service to the total relative repair cost in all classes of service was determined, and the percents so obtained applied against the actual charges for locomotive repairs, renewals and depreciation taken up for the entire railroad on the company's books for the year ended June 30th, 1913. The result was an assignment of the company's total actual charges for repairs, renewals and depreciation between the various classes of locomotive service. Into the charge for repairs, renewals and depreciation in each class of service was divided the actual mileage made during the year ended June 30th, 1913, in each class of service, and there was thus obtained an average cost per mile run in each class of service for the year on the railroad as a whole. This average cost in each class of service was applied to the actual mileage made in the State of Arkansas during the year ended June 30th, 1913, and a total and classified locomotive repair cost for that state obtained in this way. Similar assignment was made for the months of November and December, 1913.

This process involves some assumptions: One, that the average repair costs per mile run were the same in the various classes of service in all states traversed by the railroad; another, that the types and sizes of power in service in Arkansas were typical of the locomotive equipment of the entire railroad; another, that the general reapir costs per mile run between the last two general overhaulings of all locomotives were a fair indicative average of the usual costs per mile run for all repairs.

**Maintenance of Equipment:**

**PASSENGER TRAIN CAR REPAIRS.**

Accident repairs were not localized to the State.

**FREIGHT TRAIN CAR REPAIRS.**

Accident repairs were not localized to the State.

**WORK EQUIPMENT REPAIRS.**

Apportioned on basis of work car mileage. Accident repairs not localized.

## Maintenance of Equipment—Continued.

**25 STEAM LOCOMOTIVE REPAIRS.**

The cost of the running repairs of locomotives should be assigned to States on the basis of the mileage of the individual locomotives in the current month and the cost of the general repairs of locomotives should be assigned to States on the basis of the mileage of the individual locomotives since the last general repairs. The cost of repairing damages caused by collisions, derailments and similar accidents should be localized to the extent of the damage done.

**26 STEAM LOCOMOTIVE RENEWALS.**

Apportion on basis of total miles run by locomotives in each State, except that renewals account of accidents, as enumerated under Account 25, are to be localized.

**27 STEAM LOCOMOTIVE DEPRECIATION.**

Apportion on basis of total miles run by locomotives in each State. (No exception account accident repairs.)

**28 ELECTRIC LOCOMOTIVE REPAIRS.** **30 ELECTRIC LOCOMOTIVE DEPRECIATION.**
**29 ELECTRIC LOCOMOTIVE RENEWALS.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CAR REPAIRS.**

Assign to States on basis of passenger car mileage in each State, Pullman car mileage excepted. Accident repairs, including Pullmans, to be localized.

**32 PASSENGER TRAIN CAR RENEWALS.** **33 PASSENGER TRAIN CAR DEPRECIATION.**

Same as Account 31, so far as affected.

**34 FREIGHT TRAIN CAR REPAIRS.**

Assign to State on basis of freight car mileage in each State. Accident repairs to be localized.

**35 FREIGHT TRAIN CAR RENEWALS.** **36 FREIGHT TRAIN CAR DEPRECIATION.**

Same as Account 34, so far as affected.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.** **39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**

Use same proportions for freight and passenger cars, respectively, as between States and between "Line" and "Terminal," as is determined by the assignment to States, and to "Line" and "Terminal," under Accounts 31 and 34, respectively.

**40 FLOATING EQUIPMENT REPAIRS.** **42 FLOATING EQUIPMENT DEPRECIATION.**
**41 FLOATING EQUIPMENT RENEWALS.**

Locate to State in which used. Where such equipment crosses State lines, divide on mileage basis or other appropriate unit.

**43 WORK EQUIPMENT REPAIRS.** **45 WORK EQUIPMENT DEPRECIATION.**
**44 WORK EQUIPMENT RENEWALS.**

Apportion to States on basis of Work Equipment car mileage in each State. Where such car mileage is not available, use Work Train miles. Localize accident repairs.

**46 SHOP MACHINERY AND TOOLS.**

After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each State, apportion on basis of the aggregate of such charges.

**47 POWER PLANT EQUIPMENT.**

Assign to States on basis of power furnished.

**48 INJURIES TO PERSONS.** **49 STATIONERY AND PRINTING.**

After ascertaining amounts to be assigned to locomotive, passenger car, freight car and work equipment repairs in each State, apportion on basis of the aggregate of such charges.

**50 OTHER EXPENSES.**

Locate direct wherever possible. Apportion common expenses same as Accounts 48 and 49.

**51 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—Dr.** **52 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—Cr.**

Locate direct wherever possible. Common expenses to be apportioned on basis of use.

## Traffic Expenses:

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

After making the division between freight and passenger, apportion to States on basis of revenue net ton miles and revenue passenger miles.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 10.)**

**Transportation Expenses:**

**SUPERINTENDENCE.**

In apportioning common expenses the assigned charges under Accounts 77 and 78—Operating Joint Yards and Terminals, Debit and Credit, were excluded from consideration, for the reason that a debit or credit for superintendence is included in the vouchers and bills upon which the charges and credits to these accounts are made.

**DISPATCHING TRAINS.**

Expense of Dispatchers, whose territory was entirely within the State of Arkansas, was all charged to that State. Expense of Dispatchers whose territories crossed the State Line was divided between Arkansas and other States on a road mileage basis, each such territory being treated separately.

**WEIGHING AND CAR SERVICE ASSOCIATIONS.**

Assignment of this expense made to Arkansas on basis of the percentage relation of the total net tons handled in that State to the total net tons handled on the entire railroad.

**FUEL FOR ROAD LOCOMOITVES.**

The St. Louis and San Francisco Railroad maintains, as part of its regular operating statistics, a fuel consumption record for each individual engine on each trip in each class of service, and from this record an actual assignment was made to the State of Arkansas, the consumption on runs crossing the State line being prorated on a straight engine mile basis for each individual trip.

Inasmuch as all fuel consumed on the entire railroad is charged out at an entire line average price and this is necessitated by the constant changing of distribution methods owing to conditions at the source of supply, the System average price prevailing during the period under review was applied to the tonnage consumption, ascertained as stated and the fuel charge to the State of Arkansas determined in that way.

The cost of handling fuel at fuel stations has been included in the cost of fuel for road locomotives, and was arrived at by determining the average cost per ton for fuel station handling in Arkansas during the period under review, and applying that cost to the actual tonnage consumption of fuel in that State.

**WATER FOR ROAD LOCOMOTIVES.**

For the reason that the consumption of water by road locomotives directly follows the consumption of fuel, Arkansas was assigned a proportion of the entire line charge for locomotive water supply, based upon the relation of the tonnage consumption of fuel in that state to the tonnage consumption upon the entire line, by road locomotives.

**LUBRICANTS FOR ROAD LOCOMOTIVES.**
**OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Assigned to Arkansas on a locomotive mileage basis.

**TRAIN SUPPLIES AND EXPENSES.**

The provisions of the printed formula were observed with the exception that the cost of detouring trains over foreign lines was treated as a separate item. This was assigned to Arkansas direct if the entire detour was within that State, or prorated between Arkansas and other States on basis of the mileage of the detour if the detour crossed the Arkansas State line.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct wherever possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Locate direct to State on basis of smallest available territorial operating unit. Subdivide overlapping units on basis of total train mileage of such units in each State.

**63 STATION EMPLOYES.**

Locate direct to State where employed.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

Expenses of Weighing and Inspection Bureaus should be located, as far as possible, on the basis of the location of the employes of such Associations and Bureaus. Unlocated expenses should be apportioned on the basis of localized expenses under this head. The expenses for Car Service Associations should be apportioned on the basis of the total number of cars handled by each Association in each State.

**65 COAL AND ORE DOCKS.**

Assign to State in which located.

**66 STATION SUPPLIES AND EXPENSES.**

Assign to State in which station is located.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXP-YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES YARD LOCOMOTIVES.**
**77 OPTG. JT. YDS. AND TERM.—Dr.**
**78 OPTG. JT. YDS. AND TERM.—Cr.**

Assign to State in which located. In case of Yards and Terminals located on or across State line, each road will make most equitable division possible under existing conditions.

**79 MOTORMEN.**

**80 ROAD ENGINEMEN.**

Locate direct as to State. Apportion runs crossing State lines on basis of mileage of run in each State.

**81 ENGINEHOUSE EXPENSES—ROAD.**

Apportion to States on basis of total road locomotive mileage by States.

**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Locate direct wherever possible and apportion common expenses on basis of the mileage of locomotives involved.

**86 OPERATING POWER PLANTS.**

**87 PURCHASED POWER.**

Locate to States on basis of mileage of equipment using such power.

**88 ROAD TRAINMEN.**

Locate to States according to service and apportion runs crossing State lines on basis of mileage of run in each State.

**89 TRAIN SUPPLIES AND EXPENSES.**

First divide as between freight and passenger and apportion to States on the basis of the respective car mileage of each class in each State.

**90 INTERLOCKER AND BLOCK SIGNAL OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**

Assign to State in which located.

**93 CLEARING WRECKS.**

Locate to State in which wreck occurred. Common supplies to be apportioned to State on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to States on basis of all operating accounts, 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Locate to State in which used. Where such equipment crosses State lines, divide on mileage basis or other appropriate unit.

**96 EXPRESS SERVICE.**

No charges to this account.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 11.)**

**Transportation Expenses:**

**STATIONERY AND PRINTING.**
**"OTHER EXPENSES."**

In apportioning common expenses the assigned charges under Accounts 77 and 78—Operating Joint Yards and Terminals, Debit and Credit, were excluded from consideration, for the reason that a debit or credit for stationery and printing or "other expenses" is included in the vouchers and bills upon which the charges and credits to these accounts are made.

## Transportation Expenses—Continued.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate direct wherever possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE FREIGHT.** **100 LOSS AND DAMAGE BAGGAGE.**

Locate to State wherever possible, and apportion unlocated Loss and Damage on basis road mileage over which each shipment moved. Overhead charges to be apportioned on basis of assigned charges to this account.

**101 DAMAGE TO PROPERTY.**
**102 DAMAGE TO STOCK ON RIGHT OF WAY.** **103 INJURIES TO PERSONS.**

Locate to State wherever possible, and apportion common expenses on basis located charges to this account.

**104 OPERATING JOINT TRACKS AND FACILITIES—Dr.** **105 OPERATING JOINT TRACKS AND FACILITIES—Cr.**

Assign to State in which located. In case of Yards and Terminals located on or across State Line each road will use most equitable division possible under existing conditions.

## General Expenses:

**106 SALARIES AND EXPENSES—GENERAL OFFICERS.** **108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**107 SALARIES AND EXPENSES—CLERKS AND ATTENDANTS.**

After dividing between freight and passenger, apportion on basis of assignment to all operating expenses Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Locate as to State Solicitor and local attorneys. Common expenses on basis of assigned charges to all accounts, 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF EXPENSES.** **113 STATIONERY AND PRINTING.**
**112 PENSIONS.** **114 OTHER EXPENSES.**

Apportion on basis of assigned charges, Accounts 1 to 105, inclusive.

**115 GENERAL ADMINISTRATION JT. TRKS., YARDS AND TERM.—Dr.** **116 GENERAL ADMINISTRATION JT. TRKS., YARDS AND TERM—Cr.**

Locate to State in which facilities are operated.

**113½ VALUATION EXPENSES.**

Locate wherever possible. Common expenses to be apportioned on basis of track miles (all tracks.)

**Maintenance of Way and Structures:**

BUILDINGS, FIXTURES AND GROUNDS.

Division of expense of maintenance of depot buildings occupied by employes whose duties involved both line and terminal operations, was made upon basis of occupancy, determined by a time study made at each individual station, and not upon a space basis.

By a time study, in this connection, is meant a detailed record kept of the time devoted to line and terminal service by employes occupying each building.

Expenses of maintaining section and tool houses were apportioned between line and terminal on basis of the line and terminal allocation of all charges in maintenance of way accounts 2 to 10, inclusive, labor and material both included.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct wherever possible. Common expenses to be apportioned as between "Line" and "Terminal" on the basis of the assigned charges to all other M. of W. & S. accounts, under each sub-head, on the operating division to which supervision applies.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

"Line" and "Terminal" track maintenance expenditures are primarily charged against the individual tracks benefited, and the tracks and their maintenance are grouped as follows:

(a) Train tracks, consisting of main and passing tracks.
(b) Station tracks, consisting of all station service tracks not used for train or engine service.
(c) Yard tracks, consisting of classification tracks and storage tracks.
(d) Shop tracks, consisting of tracks to and about shops; also Storehouse and repair tracks.
(e) Engine Houses, Turntables, Wye, Fuel and Water Tracks.

Tracks and their maintenance included under (a) are located direct to "Line," and assigned to freight, passenger or common, according to use.

Tracks and their maintenance included under (b) are located direct to "Terminal," and assigned to freight.

Tracks and their maintenance included under (c) to be located to "Line."

Tracks and their maintenance included under (d) are grouped for any State and divided between "Line" and "Terminal," on basis of repair charges assigned to "Line" and "Terminal" in Accounts 25, 31 and 34 for entire State.

Tracks and their maintenance included under (e) are treated separately for each train terminal and apportioned to "Line" and "Terminal" on basis of assigned charges to accounts 72 and 81.

Under accounts 9 and 10, Bridges and Structures, common to "Line" and "Terminal," to be apportioned on basis of number of each class of track served.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**

Locate Signs according to purpose served. Crossing and Cattle Guards according to tracks served. Fences to be charged to "Line."

**12 SNOW AND SAND FENCES AND SNOW SHEDS.**

Locate direct to "Line."

**13 SIGNALS AND INTERLOCKING PLANTS.**

**14 TELEGRAPH AND TELEPHONE LINES.**

All common; to be apportioned half and half between "Line" and "Terminal."

**15 ELECTRIC POWER TRANSMISSION.**

Locate according to class of service benefited.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct wherever used exclusively for "Line" or "Terminal." Buildings used in common to be apportioned on basis of estimated use as follows:

Depots and other station buildings, occupied by employes whose duties involve both "Line" and "Terminal" operations, such as telegraph operators, dispatchers, etc., should be apportioned on sum of estimated occupancy for "Line" and "Terminal" operations, considering each building separately and on its merits (proportion used for account of Mail and Express to be classed as "Line"). Apportion Engine Houses on basis of assigned charges in Accounts 72 and 81. Apportion all Shop Buildings, Fixtures, etc., and all Store Houses on basis of locomotive and car repair charges assigned to "Line" and "Terminal." Apportion Section and Tool Houses on basis of labor assigned to "Line" or "Terminal," under Account 6. Apportion General Offices, Reading Rooms, Eating Houses on basis half and half to "Line" and "Terminal." Allocate Track Scales, Scale Houses, Hay Houses, Dwelling Houses, Warehouses, etc., to "Terminal." Charges account of Coal Chutes and Water facilities at all points where switch service is maintained should be apportioned to "Line" and "Terminal" on basis of assigned charges for Fuel and Water under Accounts 73 and 82 and 74 and 83, respectively. Such facilities at all other points to be charged exclusively to "Line." Each Stock Yard should be located to "Line" or "Terminal," according to use. Grounds to be included with buildings to which attached.

**Maintenance of Way and Structures:**

**ROADWAY TOOLS AND SUPPLIES.**

Common expenses apportioned on basis of all assigned charges (both labor and material) in Maintenance of Way Accounts 2 to 17, inclusive.

**STATIONERY AND PRINTING.**
**"OTHER SUPPLIES."**

Same exceptions as under Roadway Tools and Supplies.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures—Continued.

**17 DOCKS AND WHARVES.**

Charge to "Line" or "Terminal," according to use.

**18 ROADWAY TOOLS AND SUPPLIES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of labor charges assigned to other M. W. & S. accounts under "Line" and "Terminal."

**19 INJURIES TO PERSONS.**

Locate direct wherever possible. Common expenses to be apportioned to "Line" and "Terminal" on basis of located.

**20 STATIONERY AND PRINTING.** **21 OTHER EXPENSES.**

Locate direct wherever possible. Common expenses to be apportioned on basis of M. W. & S. labor charges to "Line" and "Terminal," respectively.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Charge direct to "Line" or "Terminal," according to service (passenger proportion of all tracks, signals and interlockers to be considered as "Line" and assign accordingly).

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Credit direct to class of operations, according to charge made on original bill.

### Maintenance Equipment:

**24 SUPERINTENDENCE.**

After ascertaining the amount of charges to be assigned to locomotive, passenger car, freight car and work equipment repairs under "Line" and "Terminal," respectively, apportion on basis of the aggregate of such assigned charges.

**25 STEAM LOCOMOTIVE REPAIRS.**

After the division has been made between freight and passenger, apportion road freight locomotive repairs to "Line" and "Terminal," in the ratio that time in "Line" service and time in "Terminal" service bears to the total time on road. Passenger locomotive repairs to be divided between "Line" and "Terminal" in same proportion as is determined for passenger cars. Switch locomotives to be apportioned between "Line" and "Terminal" on basis of time employed in switching Line and Terminal cars, respectively. The amount assignable to "Work" to be ascertained on mileage basis and apportioned between "Line" and "Terminal" on same basis as specified for Account 43 (Work Equipment Repairs).

**26 STEAM LOCOMOTIVE RENEWALS.** **27 STEAM LOCOMOTIVE DEPRECIATION.**

Apportion on basis of the respective assigned charges to Account 25.

**28 ELECTRIC LOCOMOTIVE REPAIRS.**
**29 ELECTRIC LOCOMOTIVE RENEWALS.** **30 ELECTRIC LOCOMOTIVE DEPRECIATION.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CAR REPAIRS.**

The amount of repairs to passenger train cars attributable to "Line" or "Terminal" service (except accident repairs) is wholly a matter of opinion, which must be determined by experts, who, because of their experience, are properly qualified to make such estimates. It, therefore, was submitted by Letter Ballot by the Chairman of the General Managers' Association to its members, as to the proportions properly chargeable to "Line" and "Terminal," and the average of such expressed opinions has been used in the assignment under these two classes. The submission of the question was accompanied by a full explanation of exactly what under this formula constitutes "Line" and "Terminal" service, respectively. The proportions thus arrived at were 64.94% "Line" and 35.06% to "Terminal."

**32 PASSENGER TRAIN CAR RENEWALS.** **33 PASSENGER TRAIN CAR DEPRECIATION.**

Apportion on basis of assigned charges to Account 31.

**Transportation Expenses:**

**SUPERINTENDENCE.**

Common expenses were apportioned on basis outlined in the formula with the exception, that the assigned charges to Accounts 77 and 78 were omitted from consideration. The reason for omitting from consideration the assigned charges in Accounts 77 and 78 is that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

## Maintenance of Equipment—Continued.

**34 FREIGHT TRAIN CAR REPAIRS.**

The amount of repairs to freight train cars attributable to "Line" or "Terminal" service (except accident repairs) is wholly a matter of opinion which must be determined by experts, who, because of their experience, are properly qualified to make such estimates. It, therefore, was submitted by Letter Ballot by the Chairman of the General Managers' Association to its members as to the proportions properly chargeable to "Line" and "Terminal" and the average of such expressed opinions has been used in the assignment under these two classes. The submission of the question was accompanied by a full explanation of exactly what under this formula constitutes "Line" and "Terminal" service, respectively. The proportions thus arrived at were 36.03 "Line" and 63.97 "Terminal."

**35 FREIGHT TRAIN CAR RENEWALS.** **36 FREIGHT TRAIN CAR DEPRECIATION.**

Apportion on basis of assigned charges to Account 34.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.** **39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Use same proportions for freight and passenger cars respectively as between states and between "Line" and "Terminal," as is determined by the assignment to states, and to "Line" and "Terminal" under Accounts 31 and 34, respectively.

**40 FLOATING EQUIPMENT REPAIRS.**
**41 FLOATING EQUIPMENT RENEWALS.** **42 FLOATING EQUIPMENT DEPRECIATION.**

Locate to Line and Terminal according to service rendered. Common expenses, if any, to be apportioned on basis of located.

**43 WORK EQUIPMENT REPAIRS.**
**44 WORK EQUIPMENT RENEWALS.** **45 WORK EQUIPMENT DEPRECIATION.**

Apportion to "Line" and "Terminal" on basis assigned charges to "Line" and "Terminal" in Accounts 2 to 17, inclusive.

**46 SHOP MACHINERY AND TOOLS.**

After ascertaining the amount of charges to be assigned to locomotive, passenger car, freight car and work equipment repairs under "Line" and "Terminal," respectively, apportion on basis of the aggregate of such assigned charges.

**47 POWER PLANT EQUIPMENT.**

Apportion to "Line" and "Terminal" on basis of power furnished in each class of service.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.** **50 OTHER EXPENSES.**

After ascertaining the amount of charges to be assigned to locomotive, passenger car, freight car and work equipment repairs under "Line" and "Terminal," respectively, apportion on basis of the aggregate of such assigned charges.

**51 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—DR.** **52 MAINTENANCE JOINT EQUIPMENT AT TERMINALS—CR.**

Assign to "Terminal" exclusively.

## Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Assign to "Terminal," exclusively.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct wherever possible. Apportion common expenses on basis of assigned charges to accounts 62 to 95, inclusive, omitting Account 94.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 15.)**

**Transportation Expenses:**

**YARD SERVICE—Accounts 67 to 78, inc.**

The printed formula was deviated from to this extent; the expenses of each yard were not treated separately, but the total yard expenses assigned to the State of Arkansas were divided upon basis of an aggregate of the time studies made in all yards.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

**Transportation Expenses—Continued.**

**62 DISPATCHING TRAINS.**

Assign to "Line" exclusively.

**63 STATION EMPLOYES.**

Consider each individual at each station separately, and assign to "Line" or Terminal," according to duties performed. Agents and other common employes at larger terminals, whose duties are chiefly supervisory, should be apportioned on the assigned expenses to other employes at their particular station.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

**65 COAL AND ORE DOCKS.**

Assign exclusively to "Terminal."

**66 STATION SUPPLIES AND EXPENSES.**

Locate direct wherever possible and apportion common expenses on basis of the assignment to "Line" and "Terminal" in Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Yard service accounts 67 to 78, inclusive, to be divided on a time basis between "Line" and "Terminal," Freight and Passenger and special subdivisions thereof as local conditions may require in order to determine with the most accuracy the proper division between the "Line" and "Terminal" cost, respectively. The expenses of each yard are to be treated separately. "Line Switching" embraces the handling of caboose cars, and such other cars (which neither originate or terminate at the station thus handling) as are taken off or put on trains but are only passing through. It includes those cars passing through junction points coming from or going to branch line points as well as cars transferred enroute. Cars received from or going to foreign connections are "Terminal," as are all cars handled for local purposes.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINEHOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**

Apportionment of these expenses between "Line" and "Terminal" to be made on the basis of the ratio that the time devoted by passenger locomotives and by freight locomotives, respectively, to station service bears to the total time of such locomotives on the road and the amount to be included hereunder will be that which is ascertained under "Line" and "Terminal," respectively.

**90 INTERLOCKER AND BLOCK SIGNAL OPERATION.**

Assign to "Line," exclusively.

**91 CROSSING FLAGMEN AND GATEMEN.**

**92 DRAWBRIDGE OPERATION.**

Locate wherever possible. Apportion expenses of such as serve both "Line" and "Terminal" tracks on basis of number of each class of track served.

**93 CLEARING WRECKS.**

Allocate to "Line" or "Terminal" according to service engaged in at time of wreck, common expenses to be apportioned on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to "Line" and "Terminal" on basis of all operating accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Assign to "Line" or "Terminal" on basis of cars handled in respective services.

## Transportation Expenses.

**STATIONERY AND PRINTING.**
**"OTHER EXPENSES."**

Common expenses were apportioned on basis outlined in the formula, with the exception that the assigned charges to Accounts 77 and 78 were omitted from consideration. The reason for omitting from consideration the assigned charges to Accounts 77 and 78 is that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for stationery and printing or "other expenses."

**LOSS AND DAMAGE FREIGHT.**
**LOSS AND DAMAGE BAGGAGE.**

It was found impracticable to make an actual allocation of these expenses between line and terminal from the information available in the records of the railroad. The allocation was, therefore, made from the original vouchers direct to State and Interstate, and a line and terminal subdivision of each of these allocations made upon basis of the assigned charges in Accounts 63 to 89, inclusive, station yard and train service, the actual allocation as between State and Interstate being observed in the subsequent division of line and terminal expenses between Intrastate and Interstate. The arbitrary division of these expenses between line and terminal as set forth above, was essential in order that relative line and terminal costs per ton and per ton mile and per passenger and per passenger mile might be obtained for use in the equation of mileages used in prorating interstate revenue.

## APPORTIONMENT OF EXPENSES BETWEEN "LINE" AND "TERMINAL" BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**96 EXPRESS SERVICE.**

No charges to this account.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Charge direct wherever possible, and apportion common expenses on basis of assigned charges to accounts 62 to 95, inclusive, omitting account 94.

**99 LOSS AND DAMAGE FREIGHT.** **100 LOSS AND DAMAGE BAGGAGE.**

Before assigning to "Line" and "Terminal," locate direct to intrastate and interstate from vouchers. Common to be divided on basis of located. After having located to intrastate and interstate, located between "Line" and "Terminal" as far as possible and divide common on basis of located.

**101 DAMAGE TO PROPERTY.**

Locate to "Line" or "Terminal," according to cause wherever possible, and apportion common expenses on basis of located.

**102 DAMAGE TO STOCK ON RIGHT OF WAY.** **103 INJURIES TO PERSONS.**

Locate payment to "Line" or "Terminal" wherever possible, according to responsibility. Unlocated payments and other expenses to be apportioned on the basis of allocated.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Assign to "Line" or "Terminal" according to nature of operations involved.

### General Expenses.

**106 SALARIES AND EXPENSES GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**

After dividing between freight and passenger apportion on basis of assignment to all operating expenses, Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Apportion on basis of assigned charges, Accounts 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**

Apportion on basis of assigned charges Accounts 1 to 105, inclusive.

**115 GENERAL ADMINSTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.** **116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**

Locate to "Line" or "Terminal," according to nature of operation.

**113 VALUATION EXPENSES.**

Apportion on basis of assigned charges, Accounts 1 to 105, inclusive.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 17.)**

**Maintenance of Way and Structures.**

**SIGNALS AND INTERLOCKING PLANTS.**

The expense of maintaining signals was divided between freight and passenger on the same basis as the maintenance of interlockers, for the reason that separate maintenance figures were not available for signals and interlockers.

**BUILDINGS, FIXTURES AND GROUNDS.**

Expense of maintaining common depots or station buildings was divided upon the basis of the time devoted by employes housed in such buildings to each class of service.

The only eating house maintained on the railroad's property in Arkansas, is at Harvard yard, and is maintained solely for the benefit of Harvard Yard employes and freight crews whose terminal is at that point. It is not used either by passenger train crews or passengers, and the charges for its maintenance have, therefore, all been assigned to freight service.

Maintenance of section and tool houses was apportioned on basis of assigned charges to maintenance of way Accounts 2 to 10, inclusive.

**ROADWAY TOOLS AND SUPPLIES.**

Apportioned on basis of assigned charges in Accounts 2 to 17, inclusive.

## APPORTIONMENT OF LINE EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct to freight and passenger wherever possible. Apportion common "Line" expenses on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

Locate exclusive freight and passenger tracks direct. The apportionment of the maintenance expenses of Line and other Common tracks, as between freight and passenger, is to be made on the basis of Engine Ton Miles based on weight of engines in working order.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**

**12 SNOW AND SAND FENCES AND SNOW SHEDS.**

Apportion on basis of revenue train miles.

**13 SIGNALS AND INTERLOCKING PLANTS.**

Apportionment for Interlockers on basis of respective number of freight and passenger trains passing over interlockers. Signals on basis of respective train miles.

**14 TELEGRAPH AND TELEPHONE LINES.**

Locate direct as far as possible. Common on basis of revenue train miles.

**15 ELECTRIC POWER TRANSMISSION.**

Locate direct to class of service served.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct to freight or passenger, according to purpose for which used. Structures and Facilities used in common for both freight and passenger service to be apportioned as follows: Common depots and station buildings on basis of estimated proportion of repairs incurred by each class of service considering each building on its merits. Engine houses on basis of assigned charges to Accounts 72 and 81. Shops on basis of assigned locomotive and car repairs charged to freight or passenger. Fuel and Water stations on basis of assigned charges to Accounts 73 and 82 and 74 and 83, respectively. Eating Houses to be assigned to passenger. Section and Tool Houses apportioned on basis of assigned charges to Account 6. Other common buildings and structures on basis of estimated use in each class of service, treating each one separately. Grounds to be treated on same basis as buildings with which they are directly connected or serve.

**17 DOCKS AND WHARVES.**

Locate direct. Apportion common on basis of use for freight or passenger service.

**18 ROADWAY TOOLS AND SUPPLIES.**

Apportion to freight or passenger on basis of revenue train mileage.

**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Locate direct to freight and passenger wherever possible. Apportion common "line" expenses on basis of assigned charges in accounts 2 to 17, inclusive.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Locate direct so far as possible. Apportion common charges on basis of revenue train miles of district.

## Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**25 STEAM LOCOMOTIVES—REPAIRS.**

Before dividing between Line and Terminal apportion between freight, passenger, switch and work on basis of miles run by individual locomotives in each service, and subdivide switch proportion on basis of time spent in freight and passenger switching and the work proportion on basis of assigned charges in accounts 2 to 17, inclusive.

**26 STEAM LOCOMOTIVES—RENEWALS.** **27 STEAM LOCOMOTIVES—DEPRECIATION.**

Apportion on basis assigned charges to Account 25.

**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.** **30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Same as steam locomotives in all subdivisions.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.** **33 PASSENGER TRAIN CARS—DEPRECIATION.**

Assign to Passenger.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.** **36 FREIGHT TRAIN CARS—DEPRECIATION.**

Assign to Freight.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.** **39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same basis as shown for freight and passenger cars, respectively, in all subdivisions.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.** **42 FLOATING EQUIPMENT—DEPRECIATION.**

Locate to freight and passenger according to service rendered.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.** **45 WORK EQUIPMENT—DEPRECIATION.**

Apportion on basis of assigned charges to Accounts 2 to 17, inclusive, in both classes.

**46 SHOP MACHINERY AND TOOLS.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**47 POWER PLANT EQUIPMENT.**

Apportion on basis of power used.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.** **50 OTHER EXPENSES.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.** **52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

No charges.

## Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

No charges.

## Transportation Expenses.

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

**STATION EMPLOYES.**

The proportion of employes time chargeable to line telegraph service was divided between freight and passenger on basis of revenue train mileage.

**YARD SERVICE—Accounts 67 to 78, inc.**

The division prescribed in the formula was made with the exception that the division of expenses in each yard was not made separately. The total yard expenses assigned to Arkansas was divided on basis of the aggregate of the time study made in all the yards in that State.

**LUBRICANTS FOR ROAD LOCOMOTIVES.**

**OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Apportioned between freight, passenger and mixed on an engine mile basis. Mixed train engine proportion subdivided between freight and passenger as prescribed in the printed formula.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Apportion on sum of total train mileage of freight and passenger trains in same territorial units as are used for dividing as between states.

**63 STATION EMPLOYES.**

Consider each individual employ separately and locate direct to freight or passenger in the proportion of the duties performed in each class of service.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

No charges.

**65 COAL AND ORE DOCKS.**

No charges.

**66 STATION SUPPLIES AND EXPENSES.**

Locate direct according to use as far as possible. Common expenses to be apportioned on basis of assigned Line charges under Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Yard Service Accounts 67 to 78, inclusive, to be divided on time basis between Line, Freight and Passenger and Terminal Freight and Passenger, with special subdivisions thereof as local conditions may require in order to determine with the most accuracy the proper division between classes. The expenses of each yard are to be treated separately. All passenger switching to be considered "Line."

**79 MOTORMEN.**

**80 ROAD ENGINEMEN.**

Locate direct according to service performed. Mixed service to be apportioned on basis of respective freight and passenger gross ton miles in mixed trains.

**81 ENGINEHOUSE EXPENSES—ROAD.**

Apportion to freight or passenger on basis of locomotives handled. Locomotives in mixed service to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Locate direct and apportion common on basis of fuel issues to locomotives involved. Mixed engine mileage on basis of respective freight and passenger gross ton miles.

**86 OPERATING POWER PLANTS.**

**87 PURCHASED POWER.**

Apportion as between freight and passenger on basis of the mileage of equipment used employing such power.

**88 ROAD TRAINMEN.**

**89 TRAIN SUPPLIES AND EXPENSES.**

Locate direct. Expenses of mixed trains to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**90 INTERLOCKERS AND BLOCKS AND OTHER SIGNALS—OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**

Apportion expenses between freight and passenger on basis of respective freight and passenger trains passing such facilities.

**Transportation Expenses.**

STATIONERY AND PRINTING.

"OTHER EXPENSES."

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for Stationery and Printing or "Other Expenses."

## APPORTIONMENT OF LINE EXPENSES BETWEEN FREIGHT AND PASSENGER BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**93 CLEARING WRECKS.**

Locate to freight and passenger according to service engaged in at time of wreck. Common expenses to be apportioned on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to freight and passenger on basis of all operating Accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Assign to freight and passenger according to service performed.

**96 EXPRESS SERVICE.**

No charges to this account.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate as far as possible and apportion to freight and passenger on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

Assign to Freight.

**100 LOSS AND DAMAGE—BAGGAGE.**

Assign to Passenger.

**101 DAMAGE TO PROPERTY.** **103 INJURIES TO PERSONS.**
**102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Locate as far as possible and apportion common to freight or passenger on basis of located expenses to this account.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Assign to freight and passenger as far as possible and apportion common expenses on respective revenue train mileage by divisions.

### General Expenses.

**106 SALARIES AND EXPENSES, GENERAL OFFICERS.** **108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**107 SALARIES AND EXPENSES, CLERKS AND ATTENDANTS.**

Before dividing to States locate direct so far as possible and apportion common expenses on basis of assigned charges to Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Apportion to freight and passenger on basis of assigned charges Accounts 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF DEPARTMENT—EXPENSES.** **113 STATIONERY AND PRINTING.**
**112 PENSIONS.** **114 OTHER EXPENSES.**

Apportion on basis of assigned charges Accounts 1 to 105, inclusive.

**115 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.** **116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINAKS—CR.**

Locate as far as possible and apportion common expenses both line and terminal on basis of assigned charges in all other joint facility accounts.

**113½ VALUATION EXPENSES.**

Apportion freight and passenger on basis of assigned charges in Accounts 1 to 105, inclusive.

## Maintenance of Way and Structures.

### BUILDINGS, FIXTURES AND GROUNDS.

Expense of maintaining common depots and station buildings was divided upon the basis of the time devoted to each class of service by employes housed in such buildings.

The only eating house maintained on the Railroad's property in Arkansas, is in Harvard Yard, and is maintained solely for the benefit of Harvard Yard employes and freight crews having their terminal at that point. It is not used either by passenger train crews or passengers, and the charges for its maintenance have, therefore, all been assigned to freight service.

Maintenance of section and tool houses was apportioned on basis of assigned charges in maintenance of way Accounts 2 to 10, inclusive.

### ROADWAY TOOLS AND SUPPLIES.

Apportioned on basis of assigned charges in Accounts 2 to 17, inclusive.

## Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Locate direct to freight and passenger wherever possible. Apportion common "Terminal" expenses on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**

Locate direct to freight or passenger where used exclusively in either service. Common tracks, such as Shop, Store House and Repair tracks, to be apportioned on basis of assigned charges in Accounts 25, 31 and 34. Engine House, Turn Tables, Wye, Fuel and Water Tracks to be apportioned on basis of assigned charges in Accounts 72 and 81.

**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**

All charges to freight.

**12 SNOW AND SAND FENCES AND SNOW SHEDS.**

No charge to Terminal.

**13 SIGNALS AND INTERLOCKING PLANTS.**

**14 TELEGRAPH AND TELEPHONE LINES.**

Apportion on basis of assigned charges to freight and passenger in Account 63.

**15 ELECTRIC POWER TRANSMISSION.**

Locate direct to class of service performed.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Locate direct to freight or passenger, according to purpose for which used. Structures and Facilities used in common for both freight and passenger service to be apportioned as follows: Common depots and station buildings on basis of estimated proportion of repairs incurred by each class of service, considering each building on its merits. Engine houses on basis of assigned charges to Accounts 72 and 81. Shops on basis of assigned locomotive and car repairs charged to freight or passenger. Fuel and Water Stations on basis of assigned charges to Accounts 73 and 82 and 74 and 83, respectively. Eating Houses to be assigned to passenger. Section and Tool Houses apportioned on basis of assigned charges to Account 6. Other common buildings and structures on basis of estimated use in each class of service, treating each one separately. Grounds to be treated on same basis as buildings with which they are directly connected or serve.

**17 DOCKS AND WHARVES.**

Locate direct. Apportion common on basis of use for either freight or passenger service.

**18 ROADWAY TOOLS AND SUPPLIES.**

All freight.

**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Locate direct to freight and passenger wherever possible. Apportion common "Terminal" expenses on basis of assigned charges in Accounts 2 to 17, inclusive.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Locate direct so far as possible. Apportion common charges on basis of respective cars handled at such terminals.

## Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

**25 STEAM LOCOMOTIVES—REPAIRS.**

Before dividing between Line and Terminal, apportion between freight, passenger, switch and work on basis of miles run by individual locomotives in each service, and subdivide switch proportion on basis of time spent in freight and passenger switching, and work proportion on basis of assigned charges in Accounts 2 to 17, inclusive.

**26 STEAM LOCOMOTIVES—RENEWALS.**

Apportion on basis assigned charges to Account 25.

**27 STEAM LOCOMOTIVES—DEPRECIATION.**

## Transportation Expenses.

### SUPERINTENDENCE.

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

### STATION EMPLOYES.

The proportion of employes time chargeable to line telegraph service was divided between freight and passenger on basis of revenue train mileage.

### YARD SERVICE—ACCOUNTS 67 to 75.

The division prescribed in the formula was made, with the exception that the division of expenses of each yard was not made separately. The total yard expense assigned to Arkansas was divided on basis of an aggregate of the time study made in all the yards in that State.

## Maintenance of Equipment—Continued.

28 ELECTRIC LOCOMOTIVES—REPAIRS.
29 ELECTRIC LOCOMOTIVES—RENEWALS.
30 ELECTRIC LOCOMOTIVES—DEPRECIATION.

Same as steam locomotives in all subdivisions.

31 PASSENGER TRAIN CARS—REPAIRS.
32 PASSENGER TRAIN CARS—RENEWALS.
33 PASSENGER TRAIN CARS—DEPRECIATION.

Assign to passenger.

34 FREIGHT TRAIN CARS—REPAIRS.
35 FREIGHT TRAIN CARS—RENEWALS.
36 FREIGHT TRAIN CARS—DEPRECIATION.

Assign to Freight.

37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.
38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.
39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.

Same basis as shown for freight and passenger cars, respectively, in all subdivisions.

40 FLOATING EQUIPMENT—REPAIRS.
41 FLOATING EQUIPMENT—RENEWALS.
42 FLOATING EQUIPMENT—DEPRECIATION.

Locate to freight and passenger according to service rendered.

43 WORK EQUIPMENT—REPAIRS.
44 WORK EQUIPMENT—RENEWALS.
45 WORK EQUIPMENT—DEPRECIATION.

Apportion on basis of assigned charges to Accounts 2 to 17, inclusive, in both classes.

46 SHOP MACHINERY AND TOOLS.

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

47 POWER PLANT EQUIPMENT.

Apportion on basis of power used.

48 INJURIES TO PERSONS.
49 STATIONERY AND PRINTING.
50 OTHER EXPENSES.

Apportion on basis of assigned charges for respective locomotive, passenger car, freight car and work equipment repairs.

51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.
52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.

Locate direct where possible. Apportion common expenses on basis of respective cars handled at such terminals.

## Traffic Expenses.

53 to 60, inc. ALL TRAFFIC ACCOUNTS.

Locate direct where possible. Apportion common 50 per cent each to freight and passenger.

## Transportation Expenses.

61 SUPERINTENDENCE.

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

62 DISPATCHING TRAINS.

No charges.

63 STATION EMPLOYES.

Consider each individual employe separately and locate direct to freight or passenger in the proportion of the duties performed in each class of service.

64 WEIGHING AND CAR SERVICE ASSOCIATIONS.
65 COAL AND ORE DOCKS.

Assign to Freight.

66 STATION SUPPLIES AND EXPENSES.

Locate direct according to use as far as possible. Common and terminal expenses to be apportioned on basis of assigned terminal charges under Account 63.

67 YARD MASTERS AND THEIR CLERKS.
68 YARD CONDUCTORS AND BRAKEMEN.
69 YARD SWITCH AND SIGNAL TENDERS.
70 YARD SUPPLIES AND EXPENSES.
71 YARD ENGINEMEN.
72 ENGINEHOUSE EXPENSES—YARD.
73 FUEL FOR YARD LOCOMOTIVES.
74 WATER FOR YARD LOCOMOTIVES.
75 LUBRICANTS FOR YARD LOCOMOTIVES.
76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.
77 OPERATING JOINT YARDS AND TERMINALS—DR.
78 OPERATING JOINT YARDS AND TERMINALS—CR.

Yard Service, Accounts 67 to 78, inclusive, to be divided on time basis between Line Freight and Passenger and Terminal Freight and Passenger, with special subdivisions thereof as local conditions may require, in order to determine with the most accuracy the proper division between classes. The expenses of each yard are to be treated separately. All passenger switching to be considered "Line."

## Transportation Expenses.

**LUBRICANTS FOR ROAD LOCOMOTIVES.**
**OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Apportioned between freight, passenger and mixed on an engine mile basis. Mixed train engine proportion subdivided between freight and passenger as prescribed in the printed formula.

**STATIONERY AND PRINTING.**
**"OTHER EXPENSES."**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for stationery and printing or "other expenses."

## Transportation Expenses—Continued.

**79 MOTORMEN.** **80 ROAD ENGINEMEN.**

Locate direct according to service performed. Mixed service to be apportioned on basis of respective freight and passenger gross ton miles in mixed trains.

**81 ENGINEHOUSE EXPENSES—ROAD.**

Apportion to freight or passenger on basis of locomotives handled. Locomotives in mixed service to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**82 FUEL FOR ROAD LOCOMOTIVES.** **84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.** **85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**

Locate direct and apportion common on basis of fuel issues to locomotives involved. Mixed engine mileage on basis of respective freight and passenger gross ton miles.

**86 OPERATING POWER PLANTS.** **87 PURCHASED POWER.**

Apportion as between freight and passenger on basis of the mileage of equipment used employing such power.

**88 ROAD TRAINMEN.** **89 TRAIN SUPPLIES AND EXPENSES.**

Locate direct. Expenses of mixed trains to be apportioned on basis of freight and passenger gross ton miles in mixed trains.

**90 INTERLOCKERS AND BLOCKS AND OTHER SIGNALS—OPERATION.**

No charges.

**91 CROSSING FLAGMEN AND GATEMEN.** **92 DRAWBRIDGE OPERATION.**

Apportion to freight and passenger on basis of assigned charges, Accounts 67 to 78, inclusive.

**93 CLEARING WRECKS.**

Locate to freight and passenger according to service engaged in at time of wreck. Common expenses to be apportioned on basis of located charges.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Apportion to freight and passenger on basis of all operating Accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Assign to freight and passenger according to service performed.

**96 EXPRESS SERVICE.**

No charges to this account.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

Assign to Freight.

**100 LOSS AND DAMAGE—BAGGAGE.**

Assign to Passenger.

**101 DAMAGE TO PROPERTY.** **102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Locate as far as possible and apportion common to freight or passenger on basis of located expenses to this account.

## Transportation Expenses—Continued.

**103 INJURIES TO PERSONS.**

Locate to freight or passenger according to responsibility and apportion common on basis of located in this account.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Locate to freight and passenger as far as possible. Apportion common expenses on basis of cars handled.

## General Expenses.

**106 SALARIES AND EXPENSES, GENERAL OFFICERS.** **108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**107 SALARIES AND EXPENSES, CLERKS AND ATTENDANTS.**

Before dividing to States, locate direct so far as possible and apportion common expenses on basis of assigned charges to Accounts 1 to 105, inclusive.

**109 LAW EXPENSES.**

Apportion to freight and passenger on basis of assigned charges, Accounts 1 to 105, inclusive.

**110 INSURANCE.**

Locate wherever possible. Common on basis of appropriate units of property or persons insured.

**111 RELIEF DEPARTMENT—EXPENSES.** **113 STATIONERY AND PRINTING.**
**112 PENSIONS.** **114 OTHER EXPENSES.**

Apportion to freight and passenger on basis of assigned charges, Accounts 1 to 105, inclusive.

**115 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.** **116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**

Locate as far as possible and apportion common expenses, both line and terminal, on basis of assigned charges in all other joint facility accounts.

**113½ VALUATION EXPENSES.**

Apportion freight and passenger on basis of assigned charges in Accounts 1 to 105, inclusive.

## APPORTIONMENT OF LINE PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 to 23 ALL MAINTENANCE OF WAY AND STRUCTURES ACCOUNTS.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class, and (c) other cars, on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars on the respective passengers one mile carried in each class, and (c) other cars on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Same as Steam Locomotives.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

Apportion on basis of car foot miles of such cars, the repairs, renewals and depreciation on Company (home) cars included in these accounts to passenger, mail and express, respectiveiy, and subdivide the passenger proportion between day coaches and other cars on basis of respective car foot miles. The proportion for the day coaches thus ascertained to be subdivided on the respective state and interstate passenger miles carried in such cars. The proportion for other cars to be divided on basis of total state and interstate passenger miles in all cars. Pullman car repairs embraced in these accounts to be divided on basis of respective state and interstate passenger miles carried in Pullman cars.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**

No charge.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same as for passenger train cars.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipment.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class and (c) other cars, on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**47 POWER PLANT EQUIPMENT.**

Same as for passenger train cars.

**Transportation Expenses.**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for superintendence.

## APPORTIONMENT OF LINE PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Maintenance of Equipment—Continued.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.**
**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger). Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class, and (c) other cars on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

### Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

No charge.

### Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion on basis of assigned charges, Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Apportion to passenger, mail and express on basis of car foot miles and divide passenger proportion between state and interstate on basis of respective passenger miles.

**63 STATION EMPLOYES.**

Apportion to passenger, mail and express on basis car foot miles. Passenger proportion between state and interstate on basis of respective passenger miles.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**
**65 COAL AND ORE BEDS.**

No charge.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion on basis of assigned charges to Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Apportion to passenger, mail and express on basis of car foot miles and divide passenger proportion on basis of respective state and interstate passenger miles in entire state.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINEHOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**
**90 INTERLOCKS AND BLOCKS AND OTHER SIGNALS—OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATIONS.**
**93 CLEARING WRECKS.**

Apportion to passenger, mail and express on basis of car foot miles (official, baggage, dining, business and other miscellaneous cars to be considered as passenger), except that baggagemen and train auditors are to be considered exclusively passenger and deducted before applying car foot miles to Account 88, and afterward added to passenger proportion. Subdivide the passenger proportion of car foot miles between (a) sleeping cars, (b) day cars and (c) baggage, dining, business and other cars, and apportion as between state and interstate as follows: (a) sleeping cars and (b) day cars, on the respective passengers one mile carried in each class, and (c) other cars on the respective number of state and interstate passengers one mile in sleeping cars and day cars combined.

**Transportation Expenses.**

STATIONERY AND PRINTING.
"OTHER EXPENSES."

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills, from which the debits and credits to these two joint facility accounts were made, themselves contained a charge or credit for stationery and printing or "other expenses."

INJURIES TO PERSONS.

Apportioned to State and Interstate on basis of respective passengers one mile, for the reason that it was impracticable to locate actually from vouchers.

## APPORTIONMENT OF LINE PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**94 TELEGRAPH AND TELEPHONE—OPERATION.**

Apportion on basis of all operating Accounts, 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipment.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Locate direct where possible. Apportion common expenses on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

No charge.

**100 LOSS AND DAMAGE—BAGGAGE.**

Before assigning to Line and Terminal, this account should be located direct from vouchers to state and interstate, and to Line and Terminal as far as possible. Unlocated items to be apportioned on the basis of located.

**101 DAMAGE TO PROPERTY.** **102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Apportion to state and interstate on basis of respective passengers one mile.

**103 INJURIES TO PERSONS.**

Locate as to state and interstate from voucher. All other on same basis as Account 101.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.** **105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Apportion to state and interstate on basis of respective passengers one mile.

**106 SALARIES AND EXPENSES—GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES—CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**109 LAW EXPENSES.**
**110 INSURANCE.**
**111 RELIEF DEPARTMENT EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**113½ VALUATION EXPENSES.**
**114 OTHER EXPENSES.**
**115 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS.**
**116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**

Apportion to state and interstate on basis of assigned charges to operating Accounts 1 to 105, inclusive.

APPORTIONMENT OF LINE FREIGHT BETWEEN INTRASTATE AND INTERSTATE.

Apportionment of line freight expenses between Intrastate and Interstate was made upon the following basis: The total gross ton mileage of each local and through freight train was ascertained, and a recapitulation thereof made to obtain the total gross ton miles of all local and all through freight trains. In the case of local and through freight trains, the gross ton miles include the weight of the engine, the average loading of the engine tank with coal and water, and the weight of the empty cars and loaded cars and contents in the trains, and also the weight of the caboose. The total gross ten miles of mixed trains were also recapitulated and divided between freight and passenger upon basis of the gross ton mileage of freight and passenger equipment and contents in the train, behind the engine tank. In the case of mixed trains the gross ton miles consisted of the same component parts as described for local and through freight trains, the weight of the passenger car or cars and their contents on basis of an estimate of 3,500 pounds for the contents of each car, being also included.

In assigning the gross ton miles of mixed trains to freight and passenger as described above, the weight of the engine and the average load on the engine tank were divided between freight and passenger on basis of the freight and passenger gross ton miles in such trains behind the engine tank.

Having ascertained the gross ton miles of local freight trains, through freight trains and the freight proportion of mixed trains in the manner outlined above, these results were used as factors on which all Line freight expenses, with the exception of wages of train and enginemen and fuel and water for road locomotives, were divided between local, through and mixed trains, the mixed train proportion being included with the local freight train proportion for the reason that the mixed train, in its freight functions, performs purely local service. Having thus divided all other Line freight expenses, the wages of train and enginemen and the expenses of fuel and water on mixed trains, were divided between freight and passenger on basis of the respective gross ton mileages in each class of service in mixed trains, as outlined above, the freight proportion of these expenses being then included with similar expenses of local freight trains.

Having in this way set up a Line freight cost assignable to local and mixed trains on one hand, and to through freight trains on the other hand, the expenses of each class of train (mixed being included with local freights), were divided between Intrastate and Interstate on basis of the net ton miles of each class hauled upon each class of train.

## APPORTIONMENT OF LINE FREIGHT BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

**1 to 23 MAINTENANCE OF WAY AND STRUCTURES.**

The apportionment between state and interstate is to be made on the basis of the respective gross ton miles of revenue freight ascertained as follows: Each train and each loaded car in the train is to be considered individually, the tare weight of the car being added to the weight of the contents in making the computation. Where cars contain both state and interstate freight, the tare ton miles of the car are to be distributed between the state and interstate in the proportion that the net ton miles of the respective state and interstate freight in the car bear to each other. The ton miles of the locomotive and the caboose of each train are then to be distributed between state and interstate in the proportion of the respective state and interstate gross ton miles of the loaded cars in the train. The ton miles of the empty cars will be ascertained separately for each train and in the final distribution of the entire traffic on each train district the aggregate ton miles of the empty cars will be divided between state and interstate in the proportion of the state and interstate traffic in the loaded cars.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E., Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**
**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

The apportionment between state and interstate is to be made on the basis of the respective gross ton miles of revenue freight ascertained as follows: Each train and each loaded car in the train is to be considered individually, the tare weight of the car being added to the weight of the contents in making the computation. Where cars contain both state and interstate freight, the tare ton miles of the car are to be distributed between the state and interstate in the proportion that the net ton miles of the respective state and interstate freight in the car bear to each other. The ton miles of the locomotive and the caboose of each train are then to be distributed between state and interstate in the proportion of the respective state and interstate gross ton miles of the loaded cars in the train. The ton miles of the empty cars will be ascertained separately for each train and in the final distribution of the entire traffic on each train district the aggregate ton miles of the empty cars will be divided between state and interstate in the proportion of the state and interstate traffic in the loaded cars.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

No charge.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**
**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

The apportionment between state and interstate is to be made on the basis of the respective gross ton-miles of revenue freight ascertained as follows: Each train and each loaded car in the train is to be considered individually, the tare weight of the car being added to the weight of the contents in making the computation. Where cars contain both state and interstate freight, the tare ton-miles of the car are to be distributed between the state and interstate in the proportion that the net ton-miles of the respective state and interstate freight in the car bear to each other. The ton-miles of the locomotive and the caboose of each train are then to be distributed between state and interstate in the proportion of the respective state and interstate gross ton miles of the loaded cars in the train. The ton miles of the empty cars will be ascertained separately for each train and in the final distribution of the entire traffic on each train district the aggregate ton miles of the empty cars will be divided between state and interstate in the proportion of the state and interstate traffic in the loaded cars.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Divide as to state and interstate on basis of respective number of revenue tons handled.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

Same as for Maintenance of Way and Structures, Accounts 1 to 23, inclusive.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 29.)**

See modification of formula set forth on page 28-A.

## Maintenance of Equipment—Continued.

**47 POWER PLANT EQUIPMENT.**

Same as for freight train cars.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.**
**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

Same as Account 25.

## Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

No charge.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion on basis of assigned charges Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

Divide as to state and interstate on basis of respective train gross ton miles.

**63 STATION EMPLOYES.**

Divide between state and interstate on basis of train gross ton miles.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**
**65 COAL AND ORE DOCKS.**

No charge.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion on basis of assigned charges to Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES FOR YARD LOCOMOTIVES.**
**77 OPERATING JOINT YARDS AND TERMINALS—DR.**
**78 OPERATING JOINT YARDS AND TERMINALS—CR.**

Apportion on basis of respective state and interstate gross tons one mile in entire state.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINEHOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**
**90 INTERLOCKS AND BLOCKS AND OTHER SIGNALS—OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATIONS.**
**93 CLEARING WRECKS.**

Locate expenses by classes of trains as far as possible and apportion on basis of respective state and interstate gross ton miles in entire state by classes of trains, i. e., mixed trains, way freight trains and other revenue freight trains. Apportion other expenses on basis of total state and interstate ton miles in state.

**94 TELEGRAPH AND TELEPHONE—OPERATION.**

Apportion on basis of all operating Accounts 1 to 105, inclusive, not including this account.

**95 OPERATING FLOATING EQUIPMENT.**

Divide as to state and interstate on basis of respective number tons handled.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.**
**98 OTHER EXPENSES.**

Apportion on basis of assigned charges Accounts 62 to 95, inclusive, excepting Account 94.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 30.)**

See modification of formula set forth on page 28-A.

## APPORTIONMENT OF LINE FREIGHT BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**99 LOSS AND DAMAGE—FREIGHT.**

Before assigning to line and terminal, this account should be located direct from vouchers to state and interstate, and to line and terminal as far as possible. Unlocated items to be apportioned on the basis of located.

**100 LOSS AND DAMAGE—BAGGAGE.**

No charge.

**101 DAMAGE TO PROPERTY.**

**102 DAMAGE TO STOCK ON RIGHT OF WAY.**

Apportion to state and interstate on basis of respective gross tons one mile.

**103 INJURIES TO PERSIONS.**

Locate as far as possible to state and interstate from voucher. All other on basis of gross ton miles.

**104 OPERATING JOINT TRACKS AND FACILITIES—DR.**

**105 OPERATING JOINT TRACKS AND FACILITIES—CR.**

Apportion to state and interstate on basis of respective gross tons one mile.

### General Expenses.

**106 SALARIES AND EXPENSES—GENERAL OFFICERS.**
**107 SALARIES AND EXPENSES—CLERKS AND ATTENDANTS.**
**108 GENERAL OFFICE SUPPLIES AND EXPENSES.**
**109 LAW EXPENSES.**
**110 INSURANCE.**
**111 RELIEF DEPARTMENT EXPENSES.**
**112 PENSIONS.**
**113 STATIONERY AND PRINTING.**
**114 OTHER EXPENSES.**
**115 GENERAL ADMINSTRATION JOINT TRACKS, YARDS AND TERMINALS—DR.**
**116 GENERAL ADMINISTRATION JOINT TRACKS, YARDS AND TERMINALS—CR.**
**113½ VALUATION EXPENSES.**

Apportion to state and interstate on basis of assigned charges to operating Accounts 1 to 105, inclusive.

**BUILDINGS, FIXTURES AND GROUNDS.**

The passenger terminal proportion of maintenance of depot buildings, etc., was all divided in one lump sum on basis of total number of respective state and interstate passengers handled in state, the number of state passengers being multiplied by two to charge for the use of two depots by said passengers, the Interstate passengers being counted once and the Trans-state passengers being eliminated from consideration, for the reason that Trans-state passengers make no use of the depot buildings within the state, or if use of stations is made by such Trans-state passengers, it is non-essential to their transportation through the state.

**ROADWAY TOOLS AND SUPPLIES.**

No charge to Terminal passenger service (see page 21 of formula which assigns Terminal proportion of this expense entirely to freight). The reason for this is that the maintenance of tracks in yards which are used in passenger service are not in any way chargeable to "Terminal" passenger service within the meaning of the formula, for the reason that such Terminal service within the meaning of the formula covers only direct expense incident to handling passengers at entraining and detraining points. The handling of passenger trains in yards before trains are placed for the entraining of passengers, or after passengers detrain, is incidental to preparing the train for "Line" service or taking care of the train after Line service, and is, therefore, wholly chargeable to Line service.

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Same exceptions as to Account 16, Buildings, Fixtures and Grounds. (See above.)

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Apportioned on same basis as the offsetting debit account—Maintaining Joint Tracks, Yards and Other Facilities.

**MAINTENANCE OF EQUIPMENT.**

**STEAM LOCOMOTIVES, REPAIRS, RENEWALS AND DEPRECIATION.**

Passenger proportion divided between State and Interstate on basis of total passengers handled in the State, the number of state

passengers being multiplied by two, each Interstate passenger being counted once and all Trans-state passengers being excluded from consideration for the reason that each state passenger must necessarily both entrain and detrain within the state, each Interstate passenger must either entrain or detrain within the state, and the entraining and detraining of Trans-state passengers is non-essential to their transportation through the state.

**PASSENGER TRAIN CARS—REPAIRS, RENEWALS AND DEPRECIATION.**

Same exceptions as under head of Steam Locomotives, Repairs, Renewals and Depreciation.

## APPORTIONMENT OF TERMINAL PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures.

**1 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**
**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**
**12 SNOW AND SAND FENCES AND SNOW SHEDS.**
**13 SIGNALS AND INTERLOCKING PLANTS.**

No charge.

**14 TELEGRAPH AND TELEPHONE LINES.**
**15 ELECTRIC POWER TRANSMISSION.**

Divide for entire state between state and interstate on basis of respective number of total state and interstate passengers using terminals.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Depot buildings, fixtures and grounds at each station to be apportioned on the sum of state and interstate passengers arriving and departing at same. Other charges on basis of total number of respective state and interstate passengers in state.

**17 DOCKS AND WHARVES.**

Apportion to passenger, mail and express on basis of car feet of trains served and divide passenger proportion between state and interstate on respective number of passengers arriving and departing.

**18 ROADWAY TOOLS AND SUPPLIES.**
**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Apportion between state and interstate on basis of assigned charges to Accounts 14 and 16.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Depot buildings, fixtures and grounds at each station to be apportioned on the sum of state and interstate passengers arriving and departing at same. Other charges on basis of total number of respective state and interstate passengers in state.

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

As originally assigned.

### Maintenance of Equipment.

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**
**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Apportion passenger, mail and express on basis car foot miles and divide passenger proportion between state and interstate on respective number of passengers getting on and off such equipment in state.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

Apportion passenger, mail and express on basis car foot miles of company (home) equipment and divide passenger proportion between state and interstate on respective number of passengers getting on and off such equipment in state.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**

No charge.

**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Same as for Accounts 31, 32 and 33.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipmrent.

**Maintaining Joint Equipment at Terminals—Cr.**

Apportioned on same basis as offsetting debit account, Maintaining Joint Equipment at Terminals.

**Traffic Expenses.**

The Manager of Mail Traffic, of the St. Louis and San Francisco Railroad until January 1st, 1914, reported to the Chief Operating Officer, and the expense of that Department were charged to account 61, Superintendence—Transportation, of which account mail traffic was charged with its car-foot-mile proportion of the passenger proportion; this Department also supervises the handling of the railtroad's own mail, hence, the employment of the basis indicated.

**Transportation Expenses.**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills from which the debits and credits to these two joint facility accounts were made, themselves contained the charge or credit for superintendence.

**STATION EMPLOYES.**

Same exceptions as noted, under Account 16, Buildings, Fixtures and Grounds, on page 31 of formula, in so far as the method of counting number of passengers is concerned.

**STATION SUPPLIES AND EXPENSES.**

Same exceptions as under Account 63, Station Employes.

**MOTORMEN AND ROAD ENGINEMEN.**

Apportioned on same basis as Accounts 81 to 89, inclusive, as shown on page 32 of the printed formula, and exceptions thereto, as noted.

**ENGINEHOUSE EXPENSES—ROAD.**
**FUEL, WATER, LUBRICANTS AND OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**ROAD TRAINMEN.**
**TRAIN SUPPLIES AND EXPENSES.**

Passenger Terminal proportion of these accounts was all divided in one lump sum on basis of total number of respective State

and Interstate passengers handled in the State, the number of state passengers being multiplied by two to charge for two terminal services rendered such passengers, the Interstate passengers being counted once, and the Trans-state passengers being eliminated from consideration for the reason that Trans-state passengers received no Terminal services within the state, or if they received such service it was non-essential to their transportation through the state.

## Maintenance of Equipment—Continued.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

No charge.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**47 POWER PLANT EQUIPMENT.**

Same as Accounts 31, 32 and 33.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—DR.**

Same as Account 25.

**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—CR.**

Same as originally assigned in bill.

## Traffic Expenses.

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Assign to mail the located expenses of the mail department and divide remainder between state and interstate on respective passenger miles.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, excepting Account 94.

**62 DISPATCHING TRAINS.**

No charge.

**63 STATION EMPLOYES.**

Apportion to mail on basis of time of employes devoted to mail service and divide remainder between state and interstate on respective number of passengers arriving and departing at station.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**
**65 COAL AND ORE DOCKS.**

No charge.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion to mail expenses paid for delivery services and divide remainder between state and interstate on respective number of passengers arriving and departing at the station.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES YARD LOCOMOTIVES.**
**77 OPTG. JT. YDS. AND TERM.—Dr.**
**78 OPTG. JT. YDS. AND TERM.—Cr.**

No charge.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**

Apportion to state and interstate on basis of respective passengers using terminals.

**81 ENGINE HOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**

First apportion to passenger and mail and express on basis of the respective car-foot-miles including all classes of passenger train equipment as ascertained for the apportionment of line expenses and apportion passenger proportion to state and interstate on basis of respective passengers using terminals.

**90 INTERLOCKER AND BLOCK AND OTHER SIGNALS OPERATION.**
**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**
**93 CLEARING WRECKS.**

**Stationery and Printing.**

"OTHER EXPENSES."

Same basis of exception as under the head of Superintendence on page 32 of the printed formula.

DAMAGE TO PROPERTY.

Same exceptions as under Account No. 63 or page 32 of the printed formula.

INJURIES TO PERSONS.

The allocation as between State and Interstate passengers direct not being practicable, this division was made on same basis as Account No. 101, Damage to Property, with the exceptions noted opposite that account.

OPERATING JOINT TRACKS AND FACILITIES—DR.
OPERATING JOINT TRACKS AND FACILITIES—CR.

Same exceptions as to Account 63 on page 32 of the formula.

## APPORTIONMENT OF TERMINAL PASSENGER BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Divide on basis of assigned charges to Accounts 1 to 105, inclusive, excepting this account.

**95 OPERATING FLOATING EQUIPMENT.**

Apportion to passenger, mail and express on basis of car feet of trains served. Divide passenger proportion as between state and interstate on respective number of passengers handled on such equipment.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, excepting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

No charge.

**100 LOSS AND DAMAGE—BAGGAGE.**

Before assigning to line and terminal, locate direct to state and interstate from vouchers. Common to be divided on basis of located.

**101 DAMAGE TO PROPERTY.**

Divide between state and interstate on basis of respective passengers handled at terminal where damage occurs.

**102 DAMAGE TO STOCK ON RIGHT OF WAY.**

No charge.

**103 INJURIES TO PERSONS.**

Locate as between state and interstate passengers injured from vouchers. Divide other injuries on same basis as for Account 101.

**104 OPERATING JOINT TRACKS AND FACILITIES—Dr.**

Divide on basis of respective number state and interstate passengers handled at all terminals in state.

**105 OPERATING JOINT TRACKS AND FACILITIES—Cr.**

As originally assigned on bill.

### General Expenses.

**106 to 116, ALL GENERAL ACCOUNTS.** **113 VALUATION EXPENSES.**

Divide on basis of assigned charges to Accounts 1 to 105, inclusive.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 34.)**

**Maintenance of Way and Structures:**

**BUILDINGS, FIXTURES AND GROUNDS.**

Apportionment not made for each station separately. The principle laid down in the formula was followed with the exception that the State and Interstate net L. C. L. tonnage was aggregated for each class for all stations within the state, and the division made on basis of these aggregate figures.

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—DR.**

Apportionment made for all stations in the state in the aggregate and not by individual stations.

**MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—CR.**

Apportioned on same basis as debit account "Maintaining Joint Tracks, Yards and Other Facilities."

## APPORTIONMENT OF TERMINAL FREIGHT BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Maintenance of Way and Structures:

**1 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges in Accounts 2 to 17, inclusive.

**2 BALLAST.**
**3 TIES.**
**4 RAILS.**
**5 OTHER TRACK MATERIAL.**
**6 ROADWAY AND TRACK.**
**7 REMOVAL OF SNOW, SAND AND ICE.**
**8 TUNNELS.**
**9 BRIDGES, TRESTLES AND CULVERTS.**
**10 OVER AND UNDER GRADE CROSSINGS.**
**11 GRADE CROSSINGS, FENCES, CATTLE GUARDS AND SIGNS.**
**12 SNOW AND SAND FENCES AND SNOW SHEDS.**
**13 SIGNALS AND INTERLOCKING PLANTS.**

Apportion to state and interstate on basis of respective gross tons of loaded cars handled on terminal tracks.

**14 TELEGRAPH AND TELEPHONE LINES.**
**15 ELECTRIC POWER TRANSMISSION.**

Apportion to state and interstate on basis of respective net tons of freight received and delivered at all stations in state.

**16 BUILDINGS, FIXTURES AND GROUNDS.**

Depot buildings, fixtures and grounds at each station to be apportioned on basis of state and interstate net tons of L. C. L. Other charges on basis of state and interstate net tons handled at all stations in state.

**17 DOCKS AND WHARVES.**

Divide between state and interstate on basis of net tons freight handled over.

**18 ROADWAY, TOOLS AND SUPPLIES.**
**19 INJURIES TO PERSONS.**
**20 STATIONERY AND PRINTING.**
**21 OTHER EXPENSES.**

Divide between state and interstate on basis of assigned charges to Accounts 2 to 17, inclusive.

**22 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Dr.**

For tracks apportion to state and interstate on basis of respective gross tons of loaded cars handled on terminal tracks at each station. For depot buildings, fixtures and grounds apportion to state and interstate on basis of respective net tons L. C. L. freight handled at each station. Other charges on basis of total net tons handled at all stations in state.

**23 MAINTAINING JOINT TRACKS, YARDS AND OTHER FACILITIES—Cr.**

As originally assigned.

### Maintenance Equipment:

**24 SUPERINTENDENCE.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**25 STEAM LOCOMOTIVES—REPAIRS.**
**26 STEAM LOCOMOTIVES—RENEWALS.**
**27 STEAM LOCOMOTIVES—DEPRECIATION.**
**28 ELECTRIC LOCOMOTIVES—REPAIRS.**
**29 ELECTRIC LOCOMOTIVES—RENEWALS.**
**30 ELECTRIC LOCOMOTIVES—DEPRECIATION.**

Divide as between state and interstate on basis of respective gross tons of loaded cars originating and terminating at all stations.

**31 PASSENGER TRAIN CARS—REPAIRS.**
**32 PASSENGER TRAIN CARS—RENEWALS.**
**33 PASSENGER TRAIN CARS—DEPRECIATION.**

No charge.

**34 FREIGHT TRAIN CARS—REPAIRS.**
**35 FREIGHT TRAIN CARS—RENEWALS.**
**36 FREIGHT TRAIN CARS—DEPRECIATION.**
**37 ELECTRIC EQUIPMENT OF CARS—REPAIRS.**
**38 ELECTRIC EQUIPMENT OF CARS—RENEWALS.**
**39 ELECTRIC EQUIPMENT OF CARS—DEPRECIATION.**

Divide between state and interstate on total respective gross tons of loaded cars received and forwarded.

**40 FLOATING EQUIPMENT—REPAIRS.**
**41 FLOATING EQUIPMENT—RENEWALS.**
**42 FLOATING EQUIPMENT—DEPRECIATION.**

Divide as to state and interstate on basis of respective number of gross tons where cars are handled and net tons where cars are not handled.

**43 WORK EQUIPMENT—REPAIRS.**
**44 WORK EQUIPMENT—RENEWALS.**
**45 WORK EQUIPMENT—DEPRECIATION.**

On basis of assigned charges in Accounts 1 to 23, inclusive.

**46 SHOP MACHINERY AND TOOLS.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**Maintaining Joint Equipment at Terminals—Cr.**

Apportioned on same basis as debit account "Maintaining Joint Equipment at Terminals."

**Transportation Expenses:**

**SUPERINTENDENCE.**

In apportioning common expenses on basis of assigned charges, such charges to Accounts 77 and 78 were excluded from consideration for the reason that the vouchers and bills from which the debits and credits to these two joint facility accounts were made themselves contained a charge or credit for Superintendence.

**STATION EMPLOYES.**

Apportioned on basis of the printed formula with the exception that the specific expense of cotton handling labor and cotton watchman was charged direct to Interstate, all cotton handled by the Railroad in the State of Arkansas being Interstate traffic.

**Accounts 67 to 78. YARD EXPENSES.**

Apportioned in accordance with the principle laid down in the printed formula with the exception that expenses incurred in all yards in Arkansas were divided in one lump sum on basis of the classified aggregate of cars handled in all yards in the state.

**Accounts 78 to 89, inclusive.**

Same exceptions as under Accounts Nos. 67 to 78, inclusive—Yard Expenses.

**Accounts 91, 92 and 93.**

Same exceptions as to Accounts 67 to 78, inclusive—Yard Expenses.

## Maintenance of Equipment—Continued.

**47 POWER PLANT EQUIPMENT.**

Divide between state and interstate on total respective gross tons of loaded cars received and forwarded.

**48 INJURIES TO PERSONS.**
**49 STATIONERY AND PRINTING.**
**50 OTHER EXPENSES.**

Divide on basis of other M. of E. Accounts 25 to 45, inclusive.

**51 MAINTAINING JOINT EQUIPMENT AT TERMINALS—Dr.**

Divide as between state and interstate on basis of respective gross tons of loaded cars originating and terminating at all stations.

**52 MAINTAINING JOINT EQUIPMENT AT TERMINALS—Cr.**

Same as originally assigned in bill.

## Traffic Expenses:

**53 to 60, inc. ALL TRAFFIC ACCOUNTS.**

Divide between state and interstate on basis of net ton miles.

## Transportation Expenses.

**61 SUPERINTENDENCE.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, omitting Account 94.

**62 DISPATCHING TRAINS.**

No charge.

**63 STATION EMPLOYES.**

Apportion to state and interstate (a) clerical expenses on respective number of consignments received and forwarded (b) platform and freight house expenses on respective number of L. C. L. tons handled, and (c) yard expenses on respective number of loaded cars received and forwarded at each station. (d) Other expenses on basis of assignment of expenses under a, b and c combined.

**64 WEIGHING AND CAR SERVICE ASSOCIATIONS.**

Apportion to state and interstate on basis of respective net tons in entire state.

**65 COAL AND ORE DOCKS.**

Apportion between state and interstate on basis of respective net tons over each dock.

**66 STATION SUPPLIES AND EXPENSES.**

Apportion on basis of assigned charges to Account 63.

**67 YARD MASTERS AND THEIR CLERKS.**
**68 YARD CONDUCTORS AND BRAKEMEN.**
**69 YARD SWITCH AND SIGNAL TENDERS.**
**70 YARD SUPPLIES AND EXPENSES.**
**71 YARD ENGINEMEN.**
**72 ENGINEHOUSE EXPENSES—YARD.**
**73 FUEL FOR YARD LOCOMOTIVES.**
**74 WATER FOR YARD LOCOMOTIVES.**
**75 LUBRICANTS FOR YARD LOCOMOTIVES.**
**76 OTHER SUPPLIES YARD LOCOMOTIVES.**
**77 OPTG. JT. YDS. AND TERM. Dr.**
**78 OPTG. JT. YDS. AND TERM. Cr.**

Consider each station separately and apportion on number of respective state and interstate cars of freight received and forwarded. Cars containing both classes of freight to be counted one-half to each class.

**79 MOTORMEN.**
**80 ROAD ENGINEMEN.**
**81 ENGINE HOUSE EXPENSES—ROAD.**
**82 FUEL FOR ROAD LOCOMOTIVES.**
**83 WATER FOR ROAD LOCOMOTIVES.**
**84 LUBRICANTS FOR ROAD LOCOMOTIVES.**
**85 OTHER SUPPLIES FOR ROAD LOCOMOTIVES.**
**86 OPERATING POWER PLANTS.**
**87 PURCHASED POWER.**
**88 ROAD TRAINMEN.**
**89 TRAIN SUPPLIES AND EXPENSES.**

Consider each station separately and apportion on basis of respective state and interstate cars of freight received and forwarded. Cars containing both classes of freight to be counted one-half to each class.

**90 INTERLOCKERS AND BLOCK SIGNALS—OPERATION.**

No charge.

**91 CROSSING FLAGMEN AND GATEMEN.**
**92 DRAWBRIDGE OPERATION.**
**93 CLEARING WRECKS.**

Consider each station separately and apportion on basis of respective state and interstate cars of freight received and forwarded. Cars containing both classes of freight to be counted one-half to each class.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 36.)**

**Stationery and Printing.**

"OTHER EXPENSES."

Exceptions on same basis as to Account 61, Superintendence, on page 35 of the formula.

DAMAGE TO PROPERTY.

Divided between State and Interstate on basis of respective loaded cars containing each class of freight handled at all terminals within the state in the aggregate.

INJURIES TO PERSONS.

Entire Terminal freight charge to this account divided on same basis as Account 101, Damage to Property.

OPERATING JOINT TRACKS AND FACILITIES—CR.

Divided on same basis as debit Account, "Operating Joint Tracks and Facilities."

## APPORTIONMENT OF TERMINAL FREIGHT BETWEEN INTRASTATE AND INTERSTATE BY PRIMARY ACCOUNTS.

### Transportation Expenses—Continued.

**94 TELEGRAPH AND TELEPHONE OPERATION.**

Divide on basis of assigned charges to Accounts 1 to 105, inclusive, excepting this account.

**95 OPERATING FLOATING EQUIPMENT.**

Divide as to state and interstate on basis of respective number of gross tons where cars are handled, and net tons where cars are not handled.

**96 EXPRESS SERVICE.**

No charge.

**97 STATIONERY AND PRINTING.** **98 OTHER EXPENSES.**

Apportion to state and interstate on basis of assigned charges to Accounts 62 to 95, inclusive, excepting Account 94.

**99 LOSS AND DAMAGE—FREIGHT.**

Before assigning to line and terminal, locate direct to state and interstate from vouchers. Common to be divided on basis of located.

**100 LOSS AND DAMAGE—BAGGAGE.**

No charge.

**101 DAMAGE TO PROPERTY.**

Divide between state and interstate on basis of respective loaded cars handled at terminals where damage occurs.

**102 DAMAGE TO STOCK ON RIGHT OF WAY.**

No charge.

**103 INJURIES TO PERSONS.**

Locate as between state and interstate freight injured from vouchers. Divide other injuries on same basis as for Account 101.

**104 OPERATING JOINT TRACKS AND FACILITIES—Dr.**

Divide on basis of respective loaded cars handled at all terminals in state.

**105 OPERATING JOINT TRACKS AND FACILITIES—Cr.**

As originally assigned on bill.

### General Expenses:

**106 to 116 ALL GENERAL ACCOUNTS.** **113½ VALUATION EXPENSES.**

Divide on basis of assigned charges to Accounts 1 to 105.

**St. Louis and San Francisco Railroad—Modification of Formula. (Page 37.)**

**Apportionment of Company or Non-Revenue Service Costs.**

Amend paragraph No. 1 to read—"Add the non-revenue tons and tons one mile to the revenue tons and tons one mile and ascertain the percentage proportion of each." The **net** tons and **net** ton miles have been used in this instance.

Amend paragraph No. 2 to read—"Add the non-revenue passengers and passengers one mile to the revenue passengers and passengers one mile and ascertain the percentage proportion of each."

Amend paragraph No. 5 to read—"xxx On basis of the assigned charges remaining in Maintenance of Way xxx."

The mail and express proportion of passenger expenses was ascertained after the adjustment of non-revenue service expenses had been made between freight and passenger services.

## FORMULA FOR THE APPORTIONMENT OF COMPANY OR NON-REVENUE SERVICE.

1. Add the non-revenue tons one mile (see Note), to the revenue tons and revenue tons one mile, similarly divided, and ascertain the percentage proportion of each.

2. Add the non-revenue passengers one mile, to the revenue passengers and revenue passengers one mile, and ascertain the percentage proportion of each.

3. Deduct from line and terminal, state and interstate freight expenses, as apportioned and assigned under all Maintenance of Way and Structure accounts, Maintenance of Equipment accounts and Conducting Transportation accounts, the percentage proportion ascertained as above for non-revenue freight, which sum will represent the expense of handling such non-revenue freight.

4. Deduct from line and terminal, state and interstate passenger expenses apportioned and assigned under all Maintenance of Way and Structure accounts, Maintenance of Equipment accounts and Conducting Transportation accounts, the percentage proportion ascertained as above for non-revenue passengers, which sum will represent the expense of handling such non-revenue passengers.

5. Add together the amounts thus representing the expense of non-revenue freight and passenger, respectively, and reapportion the total (line and terminal, state and interstate) to revenue freight, revenue passengers, and mail and express respectively, on basis of the assigned remaining in Maintenance of Way and Structure accounts, Maintenance of Equipment accounts and Conducting Transportation accounts, after the deduction as provided in Paragraphs 3 and 4 have been made.

**Note.**—Roads not having the gross ton mile unit for freight will use the net ton mile unit.

**Apportionment of the Value of Property Between Freight and Passenger, Line and Terminal, and Subdivision Between Intrastate, Interstate and Mail and Express Traffic.**

The original cost value of roadway and structures, as determined by, and under the direction of, the Chief Engineer of the St. Louis and San Francisco Railroad, has been apportioned, first, to the various classes of service, and subsequently to the various classes of traffic, on basis of the assignment of transportation expenses to each class of service and traffic, under the provisions of this formula, as modified, and as described and set forth in Exhibits Nos. 2 to 17, inclusive.

The theory upon which results of the division of transportation expenses were used as a basis on which to divide the value of roadway and structures, is that the transportation expenses themselves have been divided in minute detail on basis of the use made of such roadway and structures, and that, therefore, the apportionment of such expenses itself reflects the use made of the property.

From the value of roadway and structures divided on basis of transportation expenses, as set forth above, there has been excluded the value of all buildings and facilities (including shop machinery and tools) used in the repair of locomotives, cars and work equipment. The value of these buildings and facilities, machinery and tools, has been divided on basis of the assignment of the cost of repairs, renewals and depreciation of locomotives, cars and work equipment. The division of the values of locomotives, cars and work equipment has been made as provided for in the formula.

No portion of the value of general offices, general stores or general shops (none such located in the State of Arkansas) has been included in the valuation of the property, nor has any allowance for working fund been included in such valuation.

## FORMULA FOR THE APPORTIONMENT OF PROPERTY VALUES TO THE STATE AND BETWEEN CLASSES OF TRAFFIC.

### Apportionment of Value of Roadway and Structures between Freight and Passenger and Line and Terminal.

Values are to be located by the Engineering Department to individual stations, other individual terminal facilities and tracks and to certain convenient sections of line. The value of individual station facilities and tracks is to be apportioned between freight and passenger and between line and terminal in the ratio of the percentages determined for the apportionment of the maintenance of such facilities. Other values common to freight and passenger or to line and terminal or common to all are to be apportioned in accordance with the apportionment made of the maintenance charges of the same facilities, except that line values common to freight and passenger are to be apportioned on the basis of revenue train miles including mixed train miles, which mixed train miles are to be split one-half to freight and one-half to passenger.

### Apportionment of Value of Roadway and Structures between State and Interstate and Mail and Express.

Apportion between state and interstate and mail and express in the ratio of the assigned maintenance of way and structures expense after the company material adjustment has been made, treating freight and passenger separately.

**Note.**—General offices, general stores and general shops are to be included. Assignment of which is to be made to the state on basis of assignment of maintenance expenses of these buildings to the state.

### Apportionment of Locomotive Values to the State.

(a) Ascertain the mileage in the state and without the state on all owned locomotives making mileage during the test period. Apportion the values of such individual locomotives to the state in ratio of the mileage in the state to the total mileage made by such locomotives.

(b) Apportion the total locomotive values for the entire line in the ratio of the locomotive value assigned to the state as per paragraph "a." This is done in order to take care of the locomotives out of service.

### Apportionment of Locomotive Values between Freight and Passenger.

Ascertain the mileage in the state by individual locomotives separated according to (a) freight, (b) passenger and (c) switching. Apportion the value of such individual locomotives as assigned to the state as above provided for between freight, passenger and switch service in the ratio of the mileage. Total these values for the entire state and determine the percentage of value assigned to each class of service, which percentages shall then be applied to the value determined as per preceding paragraph "b," thus determining the total locomotive value assignable to freight, passenger and switch, respectively. Then apportion the switch value between freight and passenger in ratio of the time in freight-switch service to the time in passenger-switch service.

### Apportionment of Freight Car Values to the State.

Apportion to the state a car mileage prorate of the total value of freight car equipment.

### Apportionment of Passenger Car Values to the State.

Apportion to the state a home car mileage prorate of the total value of home passenger car equipment. Apportionment to be made by classes of passenger cars where deemed necessary in order to meet special conditions.

### Apportionment of Work Equipment Values to the State.

Apportion to the state in the ratio of the car mileage of such equipment in the state to the entire line.

### Apportionment of Work Equipment Values between Freight and Passenger and State and Interstate and Mail and Express.

Work equipment values as assigned to the state to be apportioned to freight and passenger, state and interstate and mail and express on the basis of the assigned charges in Account 43.

**Apportionment of Freight Locomotive Values between State and Interstate.**

Apportionment to be made between state and interstate in the ratio of the assigned locomotive repairs in Account 25.

**Apportionment of Passenger Locomotive Values between State and Interstate and Mail and Express.**

Apportion between state and interstate and mail and express in the ratio of the assigned locomotive repairs in Account 25.

**Apportionment of Freight Car Values between State and Interstate.**

Apportionment to be made between state and interstate in the ratio of the assigned repairs in Account 34.

**Apportionment of Passenger Car Values between State and Interstate and Mail and Express.**

Apportion between state and interstate and mail and express in the ratio of the assigned repairs in Account 31.

**Apportionment of Working Fund to the State and between Classes of Traffic.**

Working fund shall be determined by each line based on its own individual conditions for the entire line. Apportionment to be made to the state in the ratio of the assigned operating expenses. Further apportionment between classes of traffic to be made in ratio of the operating expeness assigned to each class of traffic.

Office Supreme Court, U. S.
FILED
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IN THE

# Supreme Court of the United States

OCTOBER TERM, A. D. 1916.

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## No. 252

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J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS,

*Appellants,*

*vs.*

SIDNEY E. BOYLE, as ADMINISTRATOR OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND THE ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY,

*Appellees.*

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## BRIEF FOR APPELLEES.

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W. F. EVANS,
*Of Counsel.*

January 5, 1917.

GUNTHORP-WARREN PRINTING COMPANY, CHICAGO.

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IN THE

# Supreme Court of the United States

OCTOBER TERM, A. D. 1916.

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## No. 252

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J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS,

*Appellants,*

*vs.*

SIDNEY E. BOYLE, as ADMINISTRATOR OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND THE ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY,

*Appellees.*

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## BRIEF FOR APPELLEES.

### STATEMENT.

This is an appeal from a final decree of the District Court of the United States for the Western Division of the Eastern District of Arkansas, in favor of Wilbur F. Boyle, a stockholder of the St. Louis & San Francisco Railroad Company, perpetually enjoining and restraining J. Sam Rowland, William F. McKnight, and Thomas E. Wood, as Railroad Commissioners of the State of Arkansas, and representative shippers and passengers, from enforcing, or attempting to enforce, as against the

St. Louis & San Francisco Railroad Company, the Railroad Commission's standard distance tariff No. 3, and the Arkansas two-cent passenger fare statute. In the trial court Boyle was complainant, and the Railroad Company, members of the Railroad Commission, and representative shippers and passengers were defendants. The members of the Railroad Commission in appealing made the St. Louis & San Francisco Railroad Company and Boyle appellees. The alignment of the parties in this court is different from what it was in the trial court. For convenience, Boyle and the Railroad Company will be referred to as plaintiff, and the Railroad Commission and representative shippers and passengers as defendants, this being the proper alignment of the parties according to interest, notwithstanding the fact that the Railroad Company was nominally a defendant in the trial court.

The statement of the issues and the abstract of the evidence presented in defendants' brief is incomplete and inadequate to a proper consideration of plaintiff's contentions, and the evidence in support thereof. Because of the large volume of evidence, no effort will be made to here state in detail plaintiff's contentions and the evidence given in support thereof, but each individual subject matter of controversy will be considered separately, and reference made to the evidence relating thereto. Unless otherwise stated, numbers in parentheses refer to pages of printed record.

Suit was instituted by a stockholder of the St. Louis & San Francisco Railroad Company against that company, the Railroad Commission of Arkansas, and representative shippers and passengers of the railroad company. Plaintiff sought by his bill, which was filed July 18, 1908, to perpetually enjoin the enforcement of the 2c passenger fare

statute of the State, enacted February 2, 1907, and the freight rates promulgated by the Arkansas Commission June 4, 1908, which was a modification of a prior Commission schedule, on the ground that as to each, and both combined, the revenues were after paying necessary expenses inadequate to yield a fair return upon the value of the property employed in such service.

A temporary injunction was granted on September 3, 1908, and a final decree perpetually enjoining the enforcement of the state two-cent passenger fare statute and the Arkansas Commission's freight rates was entered on the 9th day of April, 1915. From this final decree the defendants have prosecuted an appeal to this court.

The evidence on the preliminary hearing in support of the application for a temporary injunction covered the results of operation for the months of September, October, November and December, 1907. The evidence on the final hearing was taken in 1914, and covered the fiscal years 1910, 1911, 1912 and 1913, and the last four months of the calendar year 1907. The test period upon which the cost relations were ascertained under the formula for application to the prior periods was the months of November and December, 1913. These two months were shown to be in all respects normal, and the cost relation results as between state and interstate business found in these months were applied to the fiscal years ending June 30, 1910, to 1913, inclusive, and to the last four months of the calendar year 1907.

The application of the test results to the four years, 1910 to 1913, inclusive, was amply sufficient to demonstrate beyond real controversy the confiscatory nature of both the passenger fare statute and the Commission's schedule of freight rates. However, inasmuch as the temporary injunction was originally obtained in the year 1908, upon a showing based upon the last four months of

the year 1907, the November and December, 1913, test period results were applied to the last four months of the year 1907, and the results found were that the passenger fare statute and the freight rate schedule of the Arkansas Commission were confiscatory in that period, just as they were found to be in all of the other periods.

The defendants, perhaps realizing that the evidence overwhelmingly established the confiscatory nature of the passenger fare statute and the Commission's freight rates in the years 1910, 1911, 1912 and 1913, undertook by a process of equations to create a hypothetical and fictitious condition in the four months of 1907, for the purpose of basing an argument thereon that such rates were not confiscatory in that period. This purported equation is featured throughout the original brief of the defendants, and in connection therewith, and based solely on this hypothetical equation, it is claimed that the passenger fare statute and the Commission's schedule of freight rates were not conclusively shown to have been confiscatory in the last four months of the year 1907.

We believe we will be able to show that this so-called equation not only does not reflect the truth as to conditions in 1907, but is grossly misleading.

The plaintiff has, in accordance with the decision of this court in the case of *Knoxville* v. *Knoxville Water Company*, 212 U. S., 1, applied the test results to an adequate period to demonstrate the confiscatory nature of both the passenger fare statute and the freight rate orders of the Arkansas Commission.

The defendants in the first Arkansas Rate Case (187 Fed., 290; 230 U. S., 553) undertook to assist the court in a solution of the problems involved. Here they have done so in so far only as relates to the assignment of revenues and expenses to the State of Arkansas. In all

matters relating to the apportionment of expenses and values between the freight and passenger service and between intrastate and interstate traffic, they have assumed the role of the technical and uncompromising critic. They have no where made any effort to clarify the issues or assist in a solution of the problems involved. Their efforts have been to becloud and render uncertain rather than to assist in a solution of the problems involved. They apparently insist that no burden whatever rests upon them to justify or attempt to justify the reasonableness, fairness or justice of their own handiwork, the 2c passenger fare statute or the Railroad Commission's freight rates; that they are under no duty to assist the court in a solution of these important questions, and that their full duty to the court, to the public, to the plaintiff and to justice and right is discharged in pressing to the extreme limit the role of the critic.

The defendants in their evidence and in their brief present to the court as a proper measure of whether or not the Arkansas 2c passenger fare statute and the Commission's freight rates are compensatory, combined state and interstate results, based upon state and interstate passenger fares, which for about 17 months of the period involved were upon a 2½c basis, and for 31 months of the period involved were on a 3c basis. They have in effect said to this court that the proper measure of a 2c passenger fare is the combined revenues, state and interstate, realized under 2½c and 3c passenger fares. They have also in effect said that the proper measure of whether or not the Arkansas Commission's schedule of freight rates is compensatory is the return realized upon freight rates from 25 per cent. to 33⅓ per cent. higher than the Commission's schedule, combined with the revenues received from interstate transportation in the State.

Not in a single instance have the defendants undertaken

to measure the compensatory nature of intrastate passenger fares by the return realized from the intrastate passenger business alone, or by the return reduced to a 2c per mile basis. Their evidence is so given, and their brief so presents the issues that but for their criticism of plaintiff's exhibits the court would never have its attention directed to the fact that the defendants' exhibits were based, so far as passenger revenues were concerned, upon 2½c and 3c passenger fares state and interstate instead of 2c passenger fares; and as to freight rates, upon a court tariff and voluntary rates much higher than those challenged.

The plaintiff presented to the court a formula for the allocation of intrastate revenues, expenses and values to the state, and for the apportionment of such expenses and values in accordance with the use made of the property by the several classes of traffic. Complete and convincing evidence was offered in support of the provisions of the formula, the compilation of special statistics thereunder, their applicability to prior years, and the confiscatory results of the 2c passenger fare statute and the Arkansas Commission's schedule of freight rates.

The trial court, after an elaborate hearing, found in favor of the plaintiff upon every issue involved. The defendants are here challenging the direct and definite findings of the trial court made upon satisfactory and convincing evidence.

## Plan of Consideration.

The defendants' brief states the controversies presumably for the purpose of pointing out supposed flaws in the plaintiff's case. It no where gives the court an adequate grasp of the plaintiff's theory of the case, and the methods of compiling and presenting statistical results. We believe a better understanding of the case

can be had by a presentation of the plaintiff's theory of the case before considering the contentions urged in the brief of defendants.

We will, therefore, present first a general resume of the problem to be solved; a general analysis of the formula, and a list of the use units used. This will be followed by an explanation of the special test conducted, the special information compiled from current records, and the application thereof to the revenues, expenses and values for the several periods involved.

Detailed consideration is not given all of the exhibits offered in support of the plaintiff's case. Many of these exhibits are accompanied by explanation in such detail that it is not felt that further enlargement upon the same is necessary. There is little or no controversy as to many of the exhibits or challenge of the evidence given in support thereof. Therefore, mere passing mention is made of these exhibits in order to preserve the general thought intact.

## The Problem to Be Solved.

The transportation facilities of a railway company, with the exception of freight and passenger cars, exclusive freight and passenger depots, locomotives assigned exclusively to either the freight or passenger service, or such terminal tracks as may be used exclusively in the freight service, are employed concurrently in the receipt, transportation and delivery of passengers and freight. All passenger facilities are employed concurrently in the receipt, transportation and delivery of state and interstate passengers, and all freight facilities are employed concurrently in the receipt, transportation and delivery of state and interstate freight. The roadway is a facility common to both the freight and passenger serv-

ice, as trains moving over it carry both freight and passengers on both state and interstate journeys. The property of the railway company in Arkansas is but a part of a larger system, over which the business of the company as a whole is conducted.

It becomes necessary, therefore, to segregate to Arkansas the revenues received for intrastate transportation service, the expenses incurred in conducting the entire transportation service within the state, and also the value of the property employed in the conduct of such transportation within the state, from the revenues, expenses and values of the system as a whole. Substantially all of the intrastate revenues can be and have been directly located to the state, and by far the greater part of all expenses and values can be directly located to the state. A small percentage of the expense must be apportioned on appropriate units, but values have been stipulated.

An apportionment has also been made of interstate revenues to the state for information and comparison, but these revenues are not important factors in ascertaining whether or not the passenger fare statute and the Arkansas Commission freight rate orders yield a fair return upon the value of the property employed in conducting the state business.

Station facilities are employed in the receipt and delivery of freight and passengers, which is a service distinct from the movement of such freight and passengers over the line. Under the formula, these facilities, when used for services of this character, are classed as terminal, but in some instances there is a line element, representing that part of such facilities used by employes having to do with the movement of trains over the road, of which telegraph operators who receive and transit train orders are the principal part.

Station yard facilities are used largely in the receipt

and delivery of freight. The roadway and the passenger equipment are used chiefly in the line service, but it is necessary to stop passenger trains to perform terminal service in receiving and unloading passengers. The time so spent in this character of service should be and is classed as terminal service, because it is made necessary, not by the movement of passengers over the road between points of origin and destination, but to receive them on the train at point of origin and deliver them from the train at the conclusion of their journey. The same is true with reference to freight equipment, so far as it relates to stopping a freight train to set out a loaded car at destination or to pick up a loaded car at point of origin, or to set out an empty car for the purpose of loading at a given station. This is also true with reference to the train which stops to load or unload less than carload commodities at point of origin or destination of such shipments.

There is also a large use of freight equipment in terminal switching, including both locomotives and cars. At all stations where no switch engine is maintained the locomotive of the local train is used as a switch engine for setting out, switching and picking up cars, and the time of the train employes is devoted to this switching terminal service, and to the loading and unloading of less than carload freight, and fuel, water and lubricants are being consumed. At the larger stations locomotives are directly assigned to do this terminal switching work. Freight cars are in exclusive terminal service for a greater part of their total service time. The predominating terminal service of the freight car is the time in which it sets on the industry track for loading and unloading. However, there is, in addition to this, a substantial part of such time employed in terminal service while freight trains are stopping at stations and engaged in terminal work.

For the movement of trains over the line the railway company has train employes; for maintenance of way and structures and equipment separate classes of employes; for handling cars and switch engines, yard employes; for handling passengers and less than carload freight, and doing local clerical work in regard to all freight and passengers, it has station employes. For the purpose of securing traffic, publishing tariffs, establishing freight rates, etc., it has a department classified as the Traffic Department. It is also necessary to have general executive officers supervising all departments, and local supervising officers for local supervision, who are classified as general and supervisory officers.

For the purpose of classifying the expenses of railway companies the Interstate Commerce Commission has separated such expenditures into five general classifications and 117 accounts,—the first 23 accounts relating to Maintenance of Roadway and Structures; the next 29 to Maintenance of Equipment; the next 8 to Traffic Expenses; the next 45 to Transportation Expenses, and the next 12 to General Expenses. In the Maintenance of Way and Structure Expenses track expenses are included in accounts 2 to 10, inclusive, and buildings, fixtures and grounds in account 16. Maintenance of Equipment Expenses, including repairs, renewals and depreciation, are included in accounts 25 to 44, inclusive. In the Transportation Expenses station employes, and expenses incurred by them, are included in accounts 63 to 66, inclusive. Yard expenses are included in accounts 67 to 78, inclusive, and train expenses in accounts 79 to 93, inclusive.

Each item of expense incurred by a railway company in the maintenance and operation of its property must be charged to one of these 117 accounts. The classification of the items chargeable to these accounts have been

well established by the rules of the Interstate Commerce Commission, and various interpretations thereof, called Conference Rulings. In solving the problems involved, the railway company had available the charges made to each of these accounts, as prescribed by the Interstate Commerce Commission, and this classification furnished an available and appropriate basis upon which to distribute the expenses of the railway company between line and terminal, freight and passenger, state and interstate freight, state and interstate passenger, and mail and express.

Segregation is first made between the freight and passenger service, including mixed as well as freight and passenger trains, and the freight and passenger expenses are then each apportioned between line and terminal. For the line facilities it is necessary to segregate first between freight and passenger, and then the passenger train expenses between that part of the train which serves the passengers and that part which is employed in the transportation of mail and express. The amount assigned to the passenger is then apportioned between state and interstate. The amount assigned to freight is also apportioned to state and interstate on appropriate units.

Immediately following the decision of this court in the Minnesota Rate Case, leading officials of the St. Louis and San Francisco Railroad, and other western lines, held a number of conferences for the purpose of constructing a formula for the apportionment of expenses and property values upon the use basis, as suggested in the opinion in that and other rate cases. Careful consideration was given to every phase of the matter, with a view, first, to locate direct expenses and property values wherever possible, and, second, in case of inability to locate direct, to apportion on appropriate use

units. As a result of these conferences, the formula presented as Exhibit No. 1 in this case was agreed upon as correctly reflecting the use units for the apportionment of expenses and property values.

As stated by Mr. Frank Nay, Comptroller of the Rock Island Lines, a man of great experience and unquestioned integrity:

> "This formula was prepared with the utmost care for the purpose of making an accurate separation of the operating expenses among the different classes of service, with the ultimate view of getting as accurate division as possible between state and interstate freight and passenger expenses, and without regard to what the final result was going to be * * *." (292)

### General Analysis of the Formula.

The problem is one of cost accounting. The railway company is in the manufacturing business, engaged in the manufacture and sale of transportation. The formula and statistics compiled thereunder are voluminous because the problem is large, but not because it is an intricate one. The formula is simple and direct in its principles and voluminous only in the details necessary to be carried out.

In the manufacture of transportation the functions of the carrier consist in the receipt of freight and passengers at point of origin, on its own tracks; transportation to destination on the same rails, and there delivery at such destination. In order to manufacture this transportation the railway company must own a plant and rolling stock, and shops, etc., for their maintenance.

The Interstate Commerce Commission as a first step in its cost accounting plan, has prescribed 117 expense accounts, in five blocks, *i. e.*, maintenance of way, maintenance of equipment, traffic, transportation, and general

expenses. Traffic and general expenses represent the supervisory and overhead expenses in a general sense.

The first division is maintenance of way expenses, the upkeep of the plant on which the railroad operates.

The second step, the maintenance of vehicles and motive power, and the appurtenances for their upkeep.

The third step, division of traffic expenses, the expense of the sale of transportation which the railroad manufactures.

The fourth step, the division of transportation expenses, the expenses of the use of the plant in conducting the transportation. These include the operation of vehicles in which freight and passengers are transported, and the operation of depots and other means of receipt and delivery.

The fifth step, division of general expenses, the overhead and supervisory expense of the whole business, both manufacturing and selling.

The functions of the railroad, under this formula, have been divided into "line" and "terminal," or "haulage" and "nonhaulage." "Terminal expense is that incurred incident to, or made necessary by, the receipt and delivery of freight and passengers at origin and destination on the rails of the carrier whose accounts are being analyzed. "Line" or "haulage" expense is that expense incurred incident to, or made necessary by, the transporting of traffic from point of origin to point of destination, after receipt and before delivery.

It is axiomatic that the short-haul traffic is more costly than long-haul traffic. Terminal service occurs more frequently in proportion to the length of the haul in short-haul traffic than in long-haul traffic. To properly locate the relative expense of long and short-haul traffic, the formula was devised so as to charge the expenses of

terminal functions to terminal and the line functions to line, and divide each on appropriate use units.

In previous rate cases all yard and station expenses, as grouped by the Interstate Commerce Commission, were considered terminal, and all other expenses in the transportation group were considered line. This, however, is not altogether the case. In these yard expenses there are many incident to preparing trains to run over the line, which do not serve the freight or passengers which originate or terminate at that particular station exclusively. A very substantial part of these yard expenses, however, are incurred in the performing of terminal service, that is, in the handling of freight and passengers which originate or terminate at the particular station or yard.

There is a small element of line expense in the station expense group, which in previous rate cases were charged to terminal.

In the train service expenses, as classified by the Interstate Commerce Commission, there are many which are not incurred in the movement of trains over the line. For instance, the expense of the work of the local freight trains in receiving and delivering freight and switching cars and stopping at way stations—such as the engine and crew of the local train taking the place of the regular switch engine, in performing such functions. The cost of this service is charged in the Interstate Commerce Commission group to the train service, and in the rate cases which have preceded this one were charged to what we call line expenses. This is an error which is cured by the apportionment of such expenses to line and terminal upon the basis of the time employed in the line and terminal service respectively.

The formula also provides for the apportionment of

maintenance of equipment expenses to line and terminal service. This expense has heretofore been generally treated as a line expense. In some instances, as in the Iron Mountain Arkansas Rate Case (187 Fed., 290; 230 U. S., 553) on the freight side, certain estimated allowances were made as between local and through freight trains to compensate for the more frequent stopping and starting in terminal service of local over through trains; also an allowance for maintenance expenses incurred by freight locomotives and cars in terminal switching service. It is readily apparent as to both freight and passenger equipment that a substantial part of the time of such equipment is spent in terminal service, and such terminal service, from the standpoint of the making of repairs necessary, is the most severe service in which such locomotives and cars are employed. The formula takes cognizance of these conditions and provides for an apportionment of such maintenance expenses between line and terminal and the distribution of the line expenses on appropriate line units and terminal expenses on appropriate terminal units.

The formula provides for ascertaining separately the cost of local and through trains. It is a recognized fact that local freight trains are more expensive to operate per mile run than through freight trains, and more expensive to operate per ton mile of their contents than through freight trains. The local train is manned by a larger crew, who are paid higher rates of pay. It is a much longer time on the road for a given distance or journey. It is more lightly loaded, and must necessarily be in order to accomplish the functions assigned to it. A mixed train is nothing but a local train with a passenger coach attached to it, and has been treated as a local train under the formula.

The formula provides for the analysis of the contents

of the trains, local and through separately, and the ascertainment of the tons one mile of intrastate and interstate freight separately, carried on each class of train. It costs no more to carry a ton of intrastate freight than a ton of interstate freight the same distance *on the same train.* For that reason, it was fair to divide the train costs on the basis of the ton miles of state and interstate freight on each class of trains.

As to station and yard transportation expenses, the formula provides that each ton shall be charged with the cost of the service it receives at each station. In former rate cases, the total state tons were multiplied by two on the assumption that each state shipment got two handlings and each interstate shipment one handling,—and no more,—within a given state. These figures were used to divide the station and yard costs. Under this formula, in dividing station expenses, freight and passenger proportions are arrived at on the basis of the time of employes devoted to each class. The freight proportion of these station expenses was subdivided between clerical work, warehouse work and other classes of service. Taking the clerical and warehouse work as an illustration: the clerical expenses have been divided between intrastate and interstate on the basis of the number of consigments of each handled at each station. This clerical work comprises that which is necessary in accounting for and recording the consignments of freight handled through the station. The station warehouse expense has been divided between state and interstate on the basis of the number of tons of less than carload freight of each class passing through the warehouse or over the platform. The warehouse expenses are incurred for the handling of less than carload freight. The yard cost attaching to the handling of carload freight has been divided be-

tween state and interstate on the basis of the number of cars of each class handled at the individual station.

Passenger terminal expenses have been divided on the basis of the number of passengers entraining and detraining at each station.

It is a well-established rule of cost accounting that general and supervisory expenses should follow the division of all other expenses, because they are overhead to and are incurred on account of and in supervision of the making of such other expenses and for no other purpose.

As stated in defendants' original brief, page 18, plaintiff's evidence supports each item in the formula and exhibits worked out thereunder.

### Units and Bases Prescribed by the Formula for Apportionment of Expenses and Values.

We present herewith a list of the more important units and bases employed in the apportionments of expenses and values in ascertaining whether or not the Arkansas passenger fare and freight rates are compensatory. It is apparent, we feel, from an examination of these units that they are all natural use units and appropriate factors for the purposes for which used. They are stated here for the information and convenience of the court, and their particular application is pointed out and considered elsewhere in the brief.

1. Freight, passenger and work equipment car miles within and without the state for the purpose of assiging car repairs and values to the state.

2. Revenue tons one mile and revenue passengers one mile for the purpose of assigning freight and passenger traffic expense to the state.

3. The number of miles run by individual locomotives for the purpose of assigning locomotive repairs and values to the state and the state proportion between freight and passenger service.

4. The total freight and passenger locomotive miles within and without the state for the purpose of assigning lubricants and other supplies for road locomotives to the state and the state proportion between freight and passenger service.

5. The time of switch locomotives in each class of yard service for the purpose of apportioning transportation yard accounts between line and terminal and between freight and passenger.

6. The time of station employes in each class of station service for the purpose of apportioning pay of station employes and station supplies and expenses between line and terminal and freight and passenger.

7. The time of freight and passenger trains in line and terminal service for the purpose of apportioning train operation expenses and maintenance of locomotives and passenger cars between line and terminal.

8. Engine ton miles for the purpose of dividing common line maintenance of way and structures expenses between freight and passenger.

9. Train miles for the purpose of dividing the expenses of dispatching trains, operation of joint tracks and facilities, maintenance of grade crossings, fences, cattle guards and signs, snow and sand fences and snow sheds, signals, telegraph and telephone lines between freight and passenger service.

10. Gross ton miles of mixed trains separated between freight and passenger for the purpose of dividing the expenses of mixed trains between the freight and passenger service.

11. The number of freight and passenger trains passing interlockers for the purpose of dividing these expenses between freight and passenger.

12. The number of freight and passenger trains using drawbridges for the purpose of dividing these expenses between freight and passenger.

13. The number of freight and passenger trains passing crossings for the purpose of dividing crossing flagmen and gatemen expenses between freight and passenger.

14. The number of freight and passenger locomotives handled in engine houses for the purpose of dividing engine house maintenance and operation expenses between freight and passenger.

15. The number of nonrevenue passengers one mile and nonrevenue passengers using stations for the purpose of ascertaining the nonrevenue service expenses incurred by the passenger service.

16. The number of nonrevenue ton miles and tons for the purpose of ascertaining the nonrevenue service freight expenses.

17. Car foot miles of passenger train equipment by classes of service for the purpose of apportioning passenger expenses between Pullman, day cars and mail and express.

18. The state and interstate passengers one mile in Pullman and day cars, respectively, for the purpose of dividing passenger expenses between state and interstate.

19. The number of state and interstate passengers arriving at and departing from stations in the state for the purpose of apportioning passenger terminal expenses between state and interstate.

20. The gross ton miles separately for through and

local trains for the purpose of dividing line freight expenses between through and local trains.

21. The state and interstate revenue net ton miles separately for through and local trains for the purpose of dividing line freight expenses between state and interstate.

22. The number of state and interstate loaded cars handled on terminal tracks within the state for the purpose of dividing terminal yard expenses, and terminal proportion of engine and train expenses, between state and interstate.

23. The number of state and interstate gross tons of loaded cars handled on terminal tracks within the state for the purpose of dividing maintenance of terminal tracks and maintenance of equipment used in terminal service between state and interstate.

24. The state and interstate net tons of revenue freight handled at stations within the state for the purpose of dividing terminal proportion of telegraph and weighing expenses; also miscellaneous building maintenance expenses between state and interstate.

25. The number of state and interstate revenue net tons of L. C. L. freight handled at stations within the state for the purpose of dividing platform and warehouse expenses between state and interstate.

26. The number of state and interstate consignments of freight handled at each station within the state for the purpose of dividing clerical station expenses between state and interstate.

27. The revenue net ton miles and passengers one mile, state and interstate, within the state for the purpose of dividing traffic expenses between state and interstate.

The use of these natural units practically eliminates

the necessity of opinion evidence. They are such natural factors that their statement is strongly persuasive of their representative character as use units in apportioning both expenses and values. There is one apportionment, however, that of necessity rests to a very large extent upon judgment and experience, and that is the apportionment of maintenance of equipment between the line and terminal service. That apportionment is considered elsewhere under the title of "Apportionment of Maintenance of Equipment Expenses between Line and Terminal."

### Apportionment of Expenses Between Line and Terminal.

"Line" expenses are defined in the formula (p. 2) as follows:

> " 'Line' expenses are those which attach to, are directly connected with, or are occasioned by the transportation (movement) of traffic from place of receipt (one terminal) to the point of delivery (another terminal). Any service performed in the movement between these termini is a line service and any expense incident thereto constitutes a line expense."

"Terminal" expenses are defined in the formula as follows:

> " 'Terminal' expenses are those which attach to, or are connected with or occasioned by the securing, receiving, loading or otherwise preparing traffic for movement, and the unloading, delivery and other outlay incident to the disposition of the traffic at delivering or terminal station. Any service incident thereto and any expense incurred in connection therewith constitutes a 'terminal' expense."

Railway transportation consists of two distinct classes of service, viz: First, the originating and terminating service, such as the receipt of traffic and preparing it

for transportation at point of origin, and the handling and delivery at point of destination, which, under the formula, has been classed as "terminal" service; second, the movement of freight or passengers, as the case may be, while in trains between point of origin and point of destination, which under the formula, has been classed as "line" service.

Provision has been made under the formula for the segregation of expenses between line or movement expense and terminal or station-yard service expense in detail, in order that each of these classes of expenses may be apportioned between intrastate and interstate separately according to the use made of the various facilities employed in these two different and distinct classes of service. This is important if accurate results are to be obtained, because the relation of the state and interstate business to terminal expenses and terminal service is radically different from such relation to line expenses and line service. The segregation of transportation expenses into line and terminal becomes absolutely necessary in developing the cost of handling the intrastate and interstate traffic, as there is no common unit of measurement which can be applied in the division of both of these classes of expenses between intrastate and interstate, for the reason that the factor of distance must be included and given controlling effect in any unit for the division of expense of line facilities, and excluded entirely from any unit for division of expense of terminal facilities, because the relative use of either class of facilities by intrastate and interstate traffic differs quite materially, and this largely according to the respective length of haul.

The apportionment of freight terminal expenses in Arkansas on the basis of the tons one mile would operate to charge ten times as much per ton actually handled in

terminal service for the interstate as for the intrastate traffic. If the division between line and terminal be disregarded, as defendants seem to indicate should be done, there would be charged against the handling of one interstate ton one time the same amount of expense that would be charged for handling ten intrastate tons, or one intrastate ton ten times. The situation as to the passenger traffic differs only in degree. On the passenger side, the disregarding of the terminal expense would operate to charge to each interstate passenger for each terminal handling the same amount of expense that would be charged to each intrastate passenger for four terminal handlings, or four intrastate passengers for one terminal handling.

The mere statement of these results indicates the absolute unfairness of any method which undertakes to apportion terminal expenses upon the basis of the distance the passenger or ton has traveled.

To a large extent there is a natural separation between the facilities used in the line service and those used in the terminal service, and, consequently, the expenses of their maintenance and operation largely locate themselves to one or the other of these services. However, there are certain classes of maintenance and operating expenses which do not naturally separate themselves, and for this purpose certain time studies were availed of in order to ascertain the proper units of apportionment.

In one instance, that of equipment maintenance, no natural unit could be found, and the apportionment had to be made on the basis of experience and judgment.

The application of the formula has practically eliminated the necessity of that character of expert evidence which was frequently used in former rate cases in lieu

of statistical information for the ascertainment of the relative cost of doing the state and interstate business, and freight and passenger respectively.

The division of haulage expenses between intrastate and interstate traffic on the relative ton miles and passenger miles of state and interstate traffic has always been the accepted basis of apportionment. Likewise, the station terminal expenses have in all rate litigation been apportioned on the freight side as between state and interstate on the basis of the tons handled, and on the passenger side as between state and interstate on the passengers handled. Under the formula there is carved out of the train expenses that part thereof which is the equivalent of the station terminal service, which does not represent movement, and cannot be fairly measured by the distance units. The service performed by the train at a station while passengers are being loaded and unloaded is in every sense the same as that performed by the depot, and the service performed by the train employes during that time is in every sense the duplicate of the service performed by the station employes. And there is no greater reason for assigning the expenses of station employes and maintenance of the station to terminal than there is for assigning to terminal the expenses of the train employes while at the station and engaged in work which in its nature is terminal, namely, the receipt and discharge of passengers and freight. The same is true with reference to other train expenses, including fuel, water, lubricants, maintenance, etc.

To summarize, the terminal service does not operate to move traffic over the road to its destination, does not produce ton miles or passenger miles and cannot logically or reasonably be measured on the ton-mile or passenger-mile unit basis. During the time the train stops, the

process of moving the traffic is stopped. The process of delivering and receiving represents all of the activities of the train and train crew. Inasmuch as state and interstate traffic do not move equal distances it is necessary, in order to do justice as between the two, that some factor be employed which, as to the movement, takes cognizance of the distance, and which, as to the terminal service, takes cognizance of the quantity and numbers—ton handlings and passenger handlings. The service performed by the train and train crew and the fuel consumed during the time of the stop can have no proper relation to the movement of the train and traffic over the line and cannot be logically apportioned between the two on the movement units. These expenses can be fairly charged only on the basis of the traffic accommodated by the stop and the relative amount of the state and interstate traffic so accommodated.

Train transportation expenses are apportioned between line and terminal on the service time basis. That is, the relation of the terminal to the total service time and the terminal service expense thus obtained is apportioned between state and interstate upon the ton handlings and passenger handlings.

The maintenance of equipment is considered elsewhere.

No charge is made against terminal for maintenance of way expenses on account of the use of the tracks by trains while stopping for terminal purposes; that is to say, while it was found 11.41 per cent. of the total service time of passenger trains was at stations in terminal service and 24.72 per cent. of the time of freight trains was at stations in terminal service, no expense was charged to terminal on account of the use of the tracks by such trains while at stations performing terminal service. There is a small amount of terminal track expense charged to the freight service because of the

maintenance of exclusively terminal freight tracks, such as house and industry tracks. There is no terminal maintenance of track expense charged to the passenger service on any account whatever.

We have presented in the exhibits offered in evidence this essential separation of line and terminal service cost, which has been made in the minutest detail, not only as to transportation expenses, but throughout the maintenance of way and maintenance of equipment expenses. This segregation has been made direct according to the use of the railway property, plant and facilities in the line and terminal service, taking careful account of the line and terminal functions performed in each instance, so that the expenses have been divided between line and terminal in accordance with the actual use of the property in which the expense was incurred. The evidence sets forth in detail, and the exhibits demonstrate, how this division of line and terminal expense upon the use basis was made, and on the ground where the line and terminal service was performed and the expense incurred.

The principles discussed here and the applications outlined are fully sustained by the evidence and, in fact, are not seriously controverted. The evidence supporting the same is that of Mr. Hamilton at pages 74, 88, 89, 107, 108, 112, 113 and 114; Mr. Nay at pages 294, and 300 to 308; Mr. Symons at page 465 and the following pages. Attention is directed to the following excerpt from Mr. Hamilton's evidence at pages 88 and 89 of the record:

> "We know how much time it devoted to switching and loading and unloading freight at each station every time every train stopped. We know how long it stopped for other purposes, such as taking coal and water, meeting and passing trains, or getting orders. That latter class of time has been charged

to line service because it is necessary for the running of the train over the road, not for the station delivery or receipt of freight. We have segregated the actual performance of these local and through trains, and found out how much time they devoted to this terminal service, and we have divided that expense on the basis of that time. Heretofore, there has always been buried in the case of both the local train and through train this item of expense, or element of expense, which had nothing to do with the moving of that train over the road. These are not haulage costs, but are really terminal costs. In fact, the local freight train supplants the switch engine when it stops and works at a station for an extended period, a greater or shorter length of time, and that really is a yard function, a treminal function. It simply does that as a matter of economy and expediency to avoid keeping a switch engine there. We have analyzed that time and have charged the station service time, the terminal time, to terminal service. It has not been buried in the haulage cost and charged to each ton mile alike, but it has been located to that station and charged to the tons that were handled at that station, state and interstate. That explains one of the vital differences in the method heretofore followed and the method that has been followed in these exhibits. This terminal cost that we are analyzing has been built up in that way." (88, 89.)

BRIEF REVIEW OF DEVELOPMENT OF PRINCIPLE OF APPORTIONMENT OF OPERATING EXPENSES BETWEEN LINE AND TERMINAL, OR HAULAGE AND NON-HAULAGE, ACCORDING TO THE USE OF THE PROPERTY.

Generally speaking, from the beginning of rate litigation to 1907 train expenses were treated as line and station expenses were treated as terminal, and yard expenses according to use. That is to say, tracks and yards employed in the receipt, and delivery of freight were classed as terminal, and yards used for classification pur-

poses, that is making up and breaking up of trains, were treated as line.

Recognition of the greater terminal expense incurred by the local trains was attempted to be given effect by the addition of arbitrary percentages of the cost of transportation of local over through trains per movement unit. This was usually in the form of opinion evidence, sometimes based upon more or less incomplete statistical information. This is a direct recognition that there is a terminal element in the train service properly chargeable and distributable as between state and interstate on the terminal units.

While this adjustment between local and through trains made in recognition of the greater terminal expense in local trains recognized the principle of the apportionment of train expenses between the line and terminal service, or haulage and non-haulage service, it stops far short of a logical result. It attempts merely to put the local and through train on the same basis with reference to the line and terminal service, but fails to recognize and distribute the terminal element existing in all train service on the terminal units.

For instance, in the *Iron Mountain case*, 187 Fed., 290; 230 U. S., 553, the state divided maintenance of freight cars between the local and through service by first assigning 21.5 per cent. of the total freight car repairs to stopping and starting at way stations and 13.5 per cent. to terminal handlings. For the purpose of equating between local and through service the way station stopping and starting percentage of the local train was multiplied by 4 and the terminal handling percentage by 2, assuming that there was as much as 4 way station stops of cars in local trains to 1 of cars in through trains, and that each car in the local train received twice as

many terminal handlings as each car in the through freight train. The trial court found that this did not make sufficient allowance for the difference between the two classes of service, and that the local stopping and starting percentage should have been applied by a much larger factor than 4. (187 Fed., 339-340.)

However, as was above noted, the state's plan stopped with an attempted equation of local and through trains to a common basis, and failed to make distribution of train terminal expenses so adjusted upon terminal units.

Also, in the Iron Mountain case (187 Fed., 290) locomotives were classed by the state as yard locomotives and road locomotives, and road locomotives were divided between local and through. The state witnesses then added 50 per cent. to the mileage of yard locomotives to provide for the extra maintenance caused by the mileage made in yard service; and 50 per cent. to the mileage of road locomotives in local service to provide for extra switching mileage and 50 per cent. to the switch mileage of local trains to provide for extra maintenance due to switching service. By this process, for the purpose of equating between local and through engine mileage 75 per cent. of the actual mileage made by the local engine was added to such actual mileage in order to place it on a par with the through trains. There was also added to the local engine mileage an additional charge of 12 per cent. on account of engine house expense.

The effect of this equation was destroyed, in so far as reflective of actual results of cost between through and local trains was concerned by equating maintenance of way expenses between the two on the car mileage basis, treating one engine as two cars, whereas Mr. A. M. Wellington, who the state witnesses were purporting to follow, in making this aportionment, stated in Section

115 of his "The Economic Theory of the Location of Railways," that the maintenance made necessary by the locomotive was from one-half to three-fourths of all the damage resulting from the movement of freight trains over the road, while the train itself does only one-fourth to one-half of the damage. In Plaintiff's Exhibit No. 6, page 3, it is shown that the number of freight cars in an average freight train in Arkansas is 25.

The defendants assail the line and terminal division of operating expenses as one especially designed by the railroad companies for use in state rate cases. We believe what we have stated above demonstrates the fact that the defendants in the case at bar were among the first to recognize the principle of such an apportionment, although their basis was imperfect and an inadequate expression of the actual terminal expense incurred in the receipt and delivery of freight and passengers.

Shortly after the recognition of the principle by the Arkansas Commission the Oklahoma Corporation Commission had occasion to make an investigation into the cost of conducting freight transportation, state and interstate respectively. It is not believed that even the defendants in this case will charge the Oklahoma Commission with having proclaimed any principle or made any application of any established principle unduly favorable to the railway litigants in state rate cases. That Commission, in its investigation, was driven to a declaration of principles for the apportionment of operating expenses between line and terminal which are almost identical with those applied in the formula designated as Plaintiff's Exhibit No. 1.

We quote from the Fifth Annual Report of the Corporation Commission of the State of Oklahoma, published by authority of the State what it found to be the control-

ling principles involved in the apportionment of freight operating expenses between the line and terminal service for use in apportionment between state and interstate traffic. At page 363 of this Fifth Annual Report terminal expenses are defined as follows:

> "What is known as terminal expense is that expense which accrues in receiving shipments from consignors and in loading the same, setting the car, or furnishing the facilities for and unloading the same and the delivering of the commodity to the consignee, together with the switching service at either the originating or destination terminal necessary to complete the transportation of the commodity.
>
> The above items, together with such damages as may accrue at terminals, either to property or commodities shipped and all services performed therein include the entire terminal service. If the terminal cost should be accurately separated from the transportation cost, this most difficult problem would be easily solved."

On page 406 it is said:

> "The maintenance of depots should be cared for by terminal expenses, as herein indicated."

On page 408 it is said:

> "The expense of maintaining and operating the house or team track and industry tracks, we have charged to terminal expense."

On page 409 it is said:

> "The expense of maintenance of locomotives should be divided between yard service, local and through service expense. The expenses of the yard locomotive should be divided on the basis of the time used in setting cars for loading and unloading and other switching service. That is, the expense should be divided between terminal and transportation service."

On page 411 it is said:

> "General expense has been apportioned between terminal expense and other services in the ratio mentioned under the various accounts."

At page 414 it is said:

> "All the expense of station employes and equipment should be charged to terminal expense, except that portion of the time of operator and other employes, which is devoted to train movement service."

At page 416 it is said:

> "The tonnage referred to as less than carload is usually distributed in 'peddler' cars, which in fact are not switched out of the trains, but while one brakeman and the engine crew are performing terminal service on strictly carload commodities, the other train and station employes unload the less than carload business from the 'peddler' car."

At page 414 it is said:

> "Grouped under this item of incidental terminal expense are injuries to persons engaged in terminal service, loss and damage to freight; proportion of the cost of repairs to locomotives; proportion of general expenses; superintendence of maintenance of equipment and transportation, and proportion of the charge for engine house expense. There was also included a portion of expense charged to damage to property, shop machinery and tools, and renewals and depreciation of locomotives."

It will be observed that the Oklahoma Corporation Commission's definition of terminal service is substantially identical with that found in Exhibit No. 1. Considering the challenge made of the apportionment of operating expenses between line and terminal as an unfair distribution, we feel that in justice to ourselves and to the court that attention should be directed to the fact that the foundation principles upon which this apportionment rests were recognized and applied by state authorities prior to their incorporation in Exhibit No. 1.

## Intrastate Freight Rates and Passenger Fares Effective in Arkansas 1908 to 1913 inclusive.

(Exhibit No. 33.)

Exhibit 33 contains a statement of freight rates and passenger fares in force at the different periods of time involved in this litigation, and covered by the evidence and exhibits. The freight rates in effect for the various periods were as follows:

For the fiscal year ending June 30, 1908, and up to and including November 1, 1908, the Arkansas Commission's tariff No. 3. From November 2, 1908, to May 31, 1909, the railroad's own freight rates. From June 1, 1909, to July 27, 1913, the court's tariff.

The passenger fares in effect for the various periods were as follows:

June 30, 1907, to October 18, 1908, 2c per mile; October 19, 1908, to April 30, 1909, 3c per mile; from May 1, 1909, to November 26, 1910, 2½c per mile; from November 27, 1910, to July 14, 1913, 3c per mile.

The actual revenues, therefore, for the periods under consideration, except the four months of 1907, are not those earned under the prescribed freight rates and passenger fares, but were earned upon substantially higher rates. Consideration of these facts is of the very greatest importance in connection with the rate of return earned by the plaintiff from its intrastate freight and passenger traffic for the four fiscal years of 1910 to 1913, inclusive.

STATISTICS COMPILED AND TESTS MADE IN MONTHS OF NOVEMBER AND DECEMBER, 1913, FOR THE PURPOSE OF ESTABLISHING THE COST RELATIONS BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

The method of conducting the test and of compiling statistical information therefrom, and also from the current records of the company, is concisely explained in the text of Plaintiff's Exhibit Nos. 2 and 3. This text is fully verified by the evidence given by Mr. Hamilton in explanation of these exhibits, found for Exhibit No. 2 at pages 75 to 79 of the record, and for Exhibit No. 3 at page 79 of the record.

For the reason that the narrative accompanying these two exhibits is concise, explicit and complete, we feel that the methods and results can be more briefly and more directly presented by quoting same.

The text or narrative accompanying Exhibit No. 2 is as follows:

EXHIBIT No. 2.

*Preparation of Data Used as Factors in the Allocation of Expenses, Taxes, Rentals and Hire of Equipment, to the State of Arkansas, and Between "Line" and "Terminal." Freight and Passenger, Intrastate and Interstate, Mail and Express.*

The allocation of expenses, taxes, rentals and hire of equipment to Arkansas, and their division between freight and passenger, intrastate and interstate, mail and express, were made by the use of such factors as were obtainable, and which may be properly termed USE UNITS. The application of these factors to the purposes indicated above, is set forth in the formula filed as Exhibit No. 1, and in the explanations and descriptions accom-

panying the exhibits, in which the expenses, etc., as allocated, are set forth.

Wherever possible, divisions have been made upon factors based upon actual data as to the operation of the railroad, secured either from the records regularly maintained by the railroad in the ordinary conduct of its business, or by special investigations and tests conducted along with the actual everyday operation of the railroad.

Wherever, as stated above, the divisions made were based upon an analysis of the records regularly kept by the railroad, such analysis has in each instance, been carried back to the original authentic source of entry in the railroad's records.

It is proposed here to set forth the methods employed in gathering the data used in the preparation of exhibits in this case, to secure which, special investigations and tests were necessary.

In making the tests and investigations referred to, a special organization was created upon each operating division of the railroad having mileage within the State of Arkansas. These division organizations were placed in charge of a man drawn from the Division Superintendent's organization, who had had long practical railroad experience and was thoroughly familiar with the operating conditions upon the division of which he had charge. These men were carefully schooled in the requirements of the work entrusted to them. It was their duty to keep in daily touch with the conduct of the tests and investigations being made under their supervision. They were all brought together at a central point at frequent intervals, and examined concerning the conduct of the work entrusted to their charge. Interchanges of views between them were had at these meetings concerning the

work in hand, and thorough instructions given them by the representative of the railroad in general charge of the work, upon all phases of it.

In addition to the divisional supervision of the work described above, the representatives of the railroad in general charge of the work, paid frequent visits to the various divisions in order to add their personal supervision to that given to the work locally by the divisional organization. Careful and explicit instructions, in most instances in print, were given to all subordinate employes engaged upon the work, to cover the phases of the work entrusted to them. All of these subordinate employes were carefully instructed as to the proper conduct of the work entrusted to them before being sent into the field. All such subordinate employes were practical experienced railroad men, and were chosen with regard to their fitness for the particular work entrusted to them.

This statement is made here in order that it may be understood that every care was exercised to safeguard the accuracy of the data collected.

*Freight and Mixed Train Performance.*

The data of this character collected covered all trains moving wholly or partly within the State of Arkansas during the entire months of November and December, 1913.

The data as to train performance was collected upon a special form provided for that purpose, which is offered in evidence as Exhibit 2-A.

Clerks were placed upon each local freight and mixed freight train to prepare this report. Special clerks were placed in each yard office where through freight trains began or ended their runs. These special yard clerks prepared the report covering the train in its entirety as

it left the terminal. The conductors in charge of through trains were required to enter on the report all of the required data concerning cars or contents of cars, both picked up and set out between the termini of their run. Special yard clerks placed at the arriving terminal were required to enter upon the report all of the required information covering shipments picked up by the through train after leaving the departing terminal, and which was carried into the arriving terminal.

All data entered upon the report, except the calculations as to mileage and ton mileage, was acquired either by the clerk upon the train, the yard clerks at the terminals, or the conductor in charge of the train, as outlined above, directly from the actual waybills covering freight in the train, and other sources of information at first hand.

The numbers of engines and the numbers and initials of cars, were taken from the equipment as it was handled in the train.

The tare weights of cars were taken from the stenciling upon the cars themselves, except in instances where no such weights were stenciled upon the cars, and in these instances, the actual tare weights of the cars at their last weighing were obtained by the central office of the railroad from the owners of the cars. This refers to both, loaded and empty cars.

All information required by the report (Exhibit 2-A) to be taken from the waybills covering the freight, was so obtained.

In the case of cars not accompanied by regular waybills (such regular waybills having been mailed overhead to destination or to the end of the division), and which were moved upon card or slip waybills, which ordinarily would not yield the information requisite for this special

train performance report, agents were required to show upon the face of the card waybill the actual tonnage contained within the car, classified as between intrastate, interstate and company material, having in mind in the classification between state and interstate, the movement of the freight with relation to the boundaries of the State of Arkansas. Special instructions as to showing this information upon card waybills were given in circular form to all agents on the railroad authorized to make such card waybills. Copy of this circular is offered in evidence as Exhibit 2-B.

The train performance report form (Exhibit 2-A) carries upon its reverse side, explicit instructions as to its preparation, and detailed illustrations of the classification of tonnage as between intrastate, interstate and company material, with reference to its movement within the boundaries of the State of Arkansas, illustrations of several specific movements being contained therein.

The weights shown by train clerks, yard clerks and conductors, classified as between intrastate, interstate and company material, upon this report (Exhibit 2-A), were those appearing upon the face of the waybills at the time they were in their possession.

Upon receipts of these reports at the general offices of the railroad, they were carefully examined as to the accuracy of their preparation, a force of specially trained men being employed for this purpose.

The original weights of the contents of the cars shown upon the report by train clerks, conductors and yard clerks, were, in so far as carload freight is concerned, all checked against the railroad's regular scale station reports, and the original waybilled weights, all corrected to basis of the actual scaling.

The mileage each shipment was hauled in each train

was placed upon these reports (Exhibit 2-A) by expert mileage clerks at the general offices of the railroad, and in the same office the application of this mileage to the tonnage upon the report was made, translating the tonnage into ton mileage.

At this same central office, the train and equipment mileage in each separate train was computed.

A careful check was made against train dispatchers' records to see that all freight and mixed trains moving wholly or partially within the State of Arkansas, during the months of November and December, 1913, were covered by the train performance reports (Exhibit 2-A), recieved at the general office of the railroad.

From these reports were drawn separately for through and local freight trains, and for mixed trains, the engine miles and the gross and net ton miles, the latter being classified as between intrastate, interstate and company material, the gross and net ton miles of mixed trains being classified as between the freight equipment and its contents and passenger equipment.

*Passenger Train Performance.*

The data of this character collected, covered all trains moving wholly or partly within the State of Arkansas for the entire two months of November and December, 1913.

It was not necessary to place special representatives upon passenger trains in order to secure accurate first hand data as to their performance.

The data required was the passengers carried one mile within the State of Arkansas, classified as between revenue intrastate and revenue interstate, and non-revenue segregated according to the character of passenger vehicle in which they were transported; that is, Pullmans and other passenger-carrying cars, separately.

It was found practicable to secure the desired information accurately from the ticket and cash fare collections turned in to the auditor by conductors and train auditors, supplemented by certain special reports hereinafter described.

A special force of men was employed in the general offices of the railroad to examine, immediately upon their receipt, the ticket and cash fare collections and special reports, made by conductors and train auditors.

An examination of the tickets, cash fare receipts and trip passes *lifted* by conductors and train auditors on each train was made, and from these the passengers carried on transportation *lifted*, on each train, were classified as between revenue intrastate and revenue interstate, and non-revenue, and the distance which each passenger had traveled on each train, determined.

Special reports covering transportation honored *but not lifted*, such as tickets good for a journey beyond the end of the run of the condutor or train auditor on a given train, or annual or other card free transportation retained by the passenger, were required of all train auditors and conductors charged with the collection of transportation credentials on each train running wholly or partially within the State of Arkansas. Samples of these special reports are offered in evidence as Exhibits 2-C and 2-D.

A special envelope was provided in which conductors and train auditors were required to remit separately, for each train carrying Pullman cars, the transportation lifted by them from passengers riding in such cars. By this means it was possible to get a separate record of Pullman passengers one mile, classified as between revenue interstate, revenue intrastate and non-revenue. A sample of this envelope is offered in evidence as Exhibit 2-E.

The special reports (Exhibits 2-C and 2-D) hereinbefore referred to covering passengers riding on transportation honored but not lifted, carried all of the information requisite to the proper classification of passenger travel, as between intrastate, interstate and non-revenue, and coach and Pullman travel, which would have been afforded by a visualization of the tickets, etc., had the same been lifted.

With this preparation, a special force of men employed in the general office of the railroad, were enabled to make the desired classification of passenger mileage upon all trains running wholly or partly within the State of Arkansas. This data was collated upon a special form prepared for that purpose which is offered in evidence as Exhibit 2-F.

The number of passengers and the extent of their journey on each individual train, the character of equipment in which they were transported and a classification of the number of passengers as between intrastate, interstate and non-revenue, Pullman and other passenger-carrying car travel separately, was entered upon this form.

Specially trained mileage clerks entered upon this form, the mileage traveled, by each passenger, and from this applied to the data derived from the ticket cash fare and pass collections and train auditors' and conductors' special reports (Exhibits 2-C, 2-D and 2-E) the passengers transported one mile, revenue intrastate, revenue interstate and non-revenue, Pullman and other passenger-carrying car travel separately, within the State of Arkansas, were ascertained.

The force employed in the preparation of this data were specially trained men whose experience peculiarly fitted them to accurately perform the work assigned to

them, several of them having formerly been members of the railroad's regular train auditor staff.

The instructions as to the preparation of the special reports (Exhibits 2-C, 2-D and 2-E) required of train auditors and conductors, were issued in circular form. Copy of this circular is offered in evidence as Exhibit 2-G.

*Report of Train Stops and Terminal Delays.*

The data of this character collected covered all trains operated wholly or partially within the State of Arkansas during the entire months of November and December, 1913.

In complying with the provisions of the formula filed as Exhibit No. 1, it became necessary to determine what proportion of the time of trains upon the road was properly chargeable to "terminal" service and to "line" service within the meaning of the formula. To this end conductors of all freight, passenger and mixed trains, were required to render a report covering each trip on a form, sample of which is offered in evidence as Exhibit 2-H. Full instructions for the preparation of this report are carried upon the back of the form.

The report showed upon its face the time devoted to station service, and under the heading of "Terminal Delays" the time devoted to switching at the termini of the train's run. The aggregate of the station service time and switching time at train terminals, was considered as "terminal" service time.

The percentage relation of this terminal service time and the percentage relation of the balance of the train's time upon the road, plus the delay at the termini of the run other than for switching purposes, to the total time of the train upon the run plus all terminal delays, were determined, and on these percentages were divided

between "line" and "terminal," all direct train operation expenses, namely:

Wages of enginemen and trainmen, fuel, water, lubricants and supplies for road locomotives, train supplies.

The percentage relation of "line" and "terminal" service of trains upon the time basis outlined above, was ascertained in the aggregate for all trains operating wholly or partly within the State of Arkansas, but in separate groups for through freight, local freight, mixed and passenger trains.

This recapitulation and application of the data obtained from these conductors' reports was prepared in the general offices of the railroad by a special force of men employed for that purpose.

*Switch Engine Foreman's Work Report.*

The data of this character collected covered the operation of all switch engines in all yards within the State of Arkansas for the entire months of November and December, 1913.

In order to divide yard expense between "line" and "terminal," and freight and passenger, as provided for in the formula filed as Exhibit No. 1, it became necessary to determine the time devoted to each class of service, in all yards, within the State of Arkansas. For that purpose switch engine foremen in charge of all switch engines in such yards were required to render a special report daily covering the entire service time of the crews in their charge.

Sample of this report is offered in evidence as Exhibit 2-I.

Instructions as to the preparation of this report are given upon the reverse side thereof.

Switch engine foremen were required to indicate for

each half hour, the character of service in which the engines and crews under their charge were engaged during the major portion of that half hour, in accordance with the classification prescribed in the report form.

The service time as classified, on these reports was grouped in the general office of the railroad under the headings of "line" and "terminal" and "freight" and "passenger," as follows:

*Line Freight.*

Making up and breaking up trains, handling cars for icing.

*Terminal Freight.*

Handling cars (receiving a road haul) for loading and unloading at stations.

Switching cars to and from connecting lines.

Handling cars which were both loaded and unloaded within switching limits of the same yard.

*Common to Freight "Line" and "Terminal."*

Handling freight cars to and from repair tracks.

*Passenger Line.*

All passenger switching.

*Common to Freight and Passenger, "Line" and "Terminal."*

Dead time.

This "dead" time being the unemployed time of the engine crew during regular service hours, was considered as proportionately chargeable to all of the actual services performed by the engine, and was spread over them accordingly.

*Towerman's Report of Trains Passing Interlockers.*

Each employee in charge of the operation of an interlocker within the State of Arkansas was required to make report for each day during the months of November and December, 1913, of all trains passing over the interlocker in his charge. These reports were rendered upon a special form provided for that purpose which is offered in evidence as Exhibit No. 2-J. Full instructions for the preparation of this report is given on its face.

Trains and engines passing over each interlocker were classified between "passenger," "freight," "mixed," "work and wreck," and "switch" service.

The switch service was classified as between freight and passenger according to the character of equipment hauled by switch engines on each individual trip over the interlocker.

These reports were all recapitulated in the general office of the railroad.

The number of work and wreck trains passing each interlocker were spread over the freight, passenger and mixed trains using the interlocker on basis of the number of trains of each class. A division of the use of interlockers as indicated above was made direct between freight and passenger service (with the apportionment of switch and work service indicated above), the mixed train proportion of use of interlockers being divided between freight and passenger on basis of the freight and passenger gross ton miles in such trains. Having in this way determined the number of train usages of each interlocker chargeable to freight and passenger services (and all of such usage was charged to "line" service), the percentage relation of the number of usages chargeable to freight and passenger service was determined and applied to the division of the expense of maintenance and

operation of each interlocker between freight and passenger "line" service.

*Tally of Trains Crossing Drawbridges and Passing Points Where Crossing Protection Was Maintained.*

Formula filed as Exhibit No. 1 provides that the maintenance and operation of drawbridges and crossing protection devices, and the cost of maintaining flagmen at crossings, shall be divided between freight and passenger on basis of the number of trains of each class passing over each drawbridge or each crossing.

In order to accomplish this an analysis of dispatchers' train sheets was made in the office of Division Superintendents, whose territory was wholly or partially within the State of Arkansas and the number of trains of each class passing over each drawbridge and crossing ascertained therefrom. The number of mixed trains passing over drawbridges and crossings was apportioned between freight and passenger service on the basis of the gross ton miles of each class in mixed trains. After having in this way ascertained the use made of drawbridges and protected crossings by freight and passenger service, the data so obtained was used as a basis for factors on which to divide the expense of operating and maintaining these drawbridges and crossings between the two services. No portion of this expense was charged to "terminal" service, because, by reason of the location of the drawbridges and protected crossings in Arkansas, no "terminal" service use was made thereof.

*Special Report of Station Agents, Used as a Basis for Division of Station Expenses.*

In complying with the provisions of the formula, filed as Exhibit No. 1, agents at all stations within the State of Arkansas were required to render a special report

of station expense and performance for the months of November and December, 1913. Sample of this report form is offered in evidence as Exhibit No. 2-K. Instructions for the preparation of this report are given on the reverse side thereof.

Special representative was sent out to confer with all agents in the State of Arkansas and to supervise their preparation of these reports to the end that all such reports might be correctly prepared and upon a uniform basis.

For the purpose of preparing this special report, the agent at each station was required to make a study of the time devoted by himself and the employees under his charge to freight, passenger, mail, express and telegraph service. On basis of this time study, each agent was required to apportion to the various classes of service, the actual wages paid at his station.

He was also required to prepare a record of the number of tons of freight received at, forwarded from and transferred from car to car at his station, classified as between intrastate and interstate and company material, less than carload and carload separately. He was also required to tabulate the number of cars received at and forwarded from his station loaded with carload freight, the number of cars received and forwarded loaded with less than carload freight, and the gross weight (cars and contents) of all such cars, all classified as between intrastate, interstate and company material. He was also required to show (although the report does not call for this) the number of consignments of intrastate, interstate and company material freight received at and forwarded from his station.

The cost of supplies and other expenses of each separate station were determined from original records

in the offices of the Division Superintendents, and there entered on the report rendered by each agent, being divided between freight, passenger, mail, express and telegraph services in proportion to the division of wages made by the agent on basis of his time study. This division, of the cost of supplies and expenses, is provided for in the formula filed as Exhibit No. 1.

The division of wages and station supplies and expenses described above, and made at each individual station within the State of Arkansas, was recapitulated, and such tabulation furnished the division of these expenses between the various classes of service for the state as a whole.

The data as to tonnage and cars handled, prepared by the agent as hereinbefore described, was used as the basis for factors on which to divide various items of "terminal" expense as provided for in the formula, filed as Exhibit No. 1.

*Special Reports of Labor and Material Charges Required of Section Foremen.*

In order to comply with the provisions of the formula, filed as Exhibit No. 1, and the modifications thereof adopted by the St. Louis and San Francisco Railroad, as set forth on pages 4 and 4-A of the formula, all section foremen having charge of tracks within the State of Arkansas were required to keep a special record of labor expended and material used upon the section of the railroad under their charge for the entire months of November and December, 1913. Special representative was sent out on each division of the railroad to confer with each section foreman and to classify all of the tracks under his charge in accordance with the formula, filed as Exhibit No. 1, and to so arrange his time and material books that the charges for labor and material on each

separate track or class of tracks entered in these books each day were classified as between "line," "terminal," "freight," "passenger" and "common," as provided for in the formula. From a recapitulation of these time and material books made in the general office of the railroad, the data of this nature as to maintenance of way and structures expenses required for compliance with the provisions of the formula was secured.

The text accompanying Exhibit No. 3 is as follows:

EXHIBIT No. 3.

*Description of Analyses Made of the Company's Records, Regularly Maintained in the Ordinary Conduct of Its Business, to Obtain Data To Be Used as Factors in the Allocation of Expenses, Taxes, Rentals and Hire of Equipment to the State of Arkansas, and Between Line and Terminal, Freight and Passenger, Intrastate and Interstate, and Mail and Express.*

The allocation of expenses, taxes, rentals and hire of equipment to Arkansas and their division between freight and passenger, intrastate and interstate, mail and express, were made by using all such factors as were obtainable, and which may be properly termed "USE UNITS."

The application of these factors to the purposes indicated above, is set forth in the formula, filed as Exhibit No. 1, and in the explanations and descriptions accompanying the exhibits in which the expenses, etc., as allocated, are set forth.

Wherever possible, divisions have been made upon factors based upon actual data as to the operation of the railroad, secured either from the records regularly maintained by the railroad in the ordinary conduct of its

business, or by special investigations and tests conducted along with the regular every-day operation of the railroad.

A full description of these special investigations and tests and the methods employed therein, has been set forth in Exhibit No. 2, and Exhibits 2-A, 2-B, 2-C, 2-D, 2-E, 2-F, 2-G, 2-H, 2-I, 2-J and 2-K.

It is purposed here to set forth the methods employed in securing data from the ordinary records of the company upon which to base factors for use in complying with the formula filed as Exhibit No. 1.

The analyses of the company's ordinary records made for the purpose above stated, have in each instance been made from original authentic sources of entry in such records, by a special force of experienced men employed for that purpose.

*Location of Expenses, Taxes, Rentals, and Hire of Equipment, to the State of Arkansas.*

For this purpose an analysis was made of accounting and related records kept in the offices of the Division Superintendents, and the General Auditor. All original bills, vouchers and other original sources of record were examined in detail and such charges and credits as located themselves entirely to the State of Arkansas were so charged or credited. All charges and credits assignable partially to Arkansas and partially to other states were analyzed and a proportion thereof assigned to Arkansas upon the bases provided in the formula filed as Exhibit No. 1, and the modifications thereof adopted by the St. Louis & San Francisco Railroad, also set forth in said exhibit. This assignment of expenses, taxes, rentals and hire of equipment to the State of Arkansas as outlined above, was made for the entire year ended June

30, 1913, and also for the months of November and December, 1913.

*Allocation of Expenses Assigned to Arkansas Between Line and Terminal, Freight and Passenger, Intrastate and Interstate and Mail and Express.*

These allocations were made in accordance with the provisions of the formula filed as Exhibit No. 1, and the modifications thereof adopted by the St. Louis & San Francisco Railroad, as set forth in said exhibit. In some instances, such allocations were made direct from original sources of entry (vouchers, bills and kindred sources), in others, the railroad's regular accounts kept in accordance with the requirements of the Interstate Commerce Commission, themselves afforded the means of making these allocations direct, and in other instances the factors obtained through special tests and investigations (as described in Exhibits 2 and 2-A to 2-K, inclusive), were employed in making these allocations, and in still other instances, factors derived from the railroad's records regularly kept in the ordinary conduct of its business were employed.

A description of the method of preparing the factors derived from the railroad's ordinary records is given hereinafter.

*Freight Car Miles, Passenger Car Miles, Work Car Miles, and All Classes of Train Miles.*

Wherever train or equipment mileage figures (as described above), for a period other than for the months of November and December, 1913; (the similar data for those two months being secured as outlined in Exhibit No. 2), were used as factors, the mileage figures so used were those regularly compiled by the railroad in the office of its car accountant. These mileage figures are

derived by the car accountant from original reports made by officers and employees in direct charge of the operation of trains, engines and cars. Wherever such reports cover movements entirely within the State of Arkansas all such movements were charged to that State. Wherever such reports covered movements of train or other units across the boundaries of the State of Arkansas, an analysis of each individual report was made, and an actual assignment of train, engine or car mileage to the State of Arkansas made therefrom.

*Net Tons and Net Ton Miles and Passenger and Passenger Miles.*

Wherever net ton, net ton mile, passenger, or passenger mile figures for a period other than the months of November and December, 1913 (the similar data for those two months being secured as outlined in Exhibit No. 2), were used as factors, the tonnage, ton mileage, passenger and passenger mileage figures so used were those regularly compiled by the freight and passenger auditors of the railroad for its own usual purposes, and were recorded in the regular statistical records of the railroad.

The railroad, for purposes of reports required by the State regulating bodies, keeps in its records from month to month, an actual assignment of net tons and passengers handled, and net ton miles and passenger miles hauled, prepared from original sources, and assigned upon bases of actual allocation to the various States. Wherever figures of this character located to the State of Arkansas have been used in complying with the formula filed as Exhibit No. 1, they have been such figures compiled currently each month by the railroad as set forth above.

*Car-Foot Miles.*

In complying with the provisions of the formula filed as Exhibit No. 1, it became necessary to determine the amount of space used in passenger trains within the State of Arkansas during the months of November and December, 1913, for the transportation of passengers in Pullman cars and in other passenger-carrying cars, separately, and for passenger auxiliary service in baggage, dining, and cafe-observation cars, and for mail and express service. From the passenger train wheel reports regularly rendered by conductors in charge of such trains, the mileage of each car moving in trains within the State of Arkansas during the period indicated above, was ascertained. This mileage of each individual car was multiplied by the actual inside length of the car in feet and inches, determined from the railroad's equipment records, and in the case of Pullman cars, from the Pullman Company's records, the product of such multiplication being expressed in car-foot miles.

The car-foot miles of each individual car were assigned according to the class of service (as outlined above), in which it was used upon each individual trip. In the case of cars employed in two or more services, the division between these various services (individual trips being considered separately) was made according to the number of services in which the car was employed on each individual trip. As illustrations: A baggage car assigned for the transportation of both baggage and express was counted one-half baggage and one-half express. A baggage car assigned for the transportation of baggage, express and pouch mail was counted one-third each to baggage, mail and express. Combination cars assigned for the transportation of baggage, mail and passengers were counted one-third each to baggage, mail and passenger carrying services. These illustrations

will serve to indicate the basis followed, the same principle being followed where a car was assigned to other combinations of services on a single trip.

The car-foot mileage of passenger train equipment in mixed trains was divided between the various classes of service upon the same basis as outlined for equipment in straight passenger trains.

*Engine Ton Miles.*

In the division between freight and passenger, of some portions of maintenance of way expense charged to line service, the engine ton mile unit was used.

The engine ton mile unit referred to may be defined as follows: It is the total weight of the engine and its tender plus the average lading of the tender with fuel and water, multiplied by the number of miles run by the engine. In preparing this unit for use in the division of expenses indicated above, for the months of November and December, 1913, the mileage of individual engines was secured, in freight service from the train performance report of which sample is filed as Exhibit No. 2-A, and in passenger service from the regular passenger train wheel reports of the railroad. This refers solely to the mileage made by engines within the State of Arkansas. In translating these engine mileages into engine ton miles, the actual weight of each engine and tender was ascertained from the company's equipment records, and there was added thereto 66 2/3 per cent. of the loading capacity of the engine tender for coal and water, reduced to a tonnage basis, 66 2/3 per cent. being the approximate average load of fuel and water carried at all times on an engine's tender when in actual service. The total weights of engines and their loaded tenders so obtained were multiplied separately for each individual locomotive in each class of service, by the mile-

age of such engines, the product being the freight, passenger and mixed engine ton miles.

The mixed train proportion of maintenance of way expenses ascertained on the engine ton mile basis as outlined above, was subdivided between freight and passenger upon basis of the gross ton miles of freight and passenger equipment and contents in such trains, these freight and passenger gross ton miles in mixed trains having been determined on the basis set forth in Exhibit No. 2.

*Wages and Fuel—Local and Through Freight Trains and Mixed Trains.*

Wages paid local freight train and engine crews, and through freight train and engine crews, separately, were determined from the original time slips and other time-keeping records of the company, and represent, as set forth in subsequent exhibits, an actual allocation to the two classes of trains.

The charges for fuel consumed by local and through freight train engines, separately, were determined as a matter of actual allocation from the company's regular fuel performance records which afford information as to the actual consumption of fuel by each locomotive on each trip.

Same direct allocation of wage and fuel costs as is described above, was made for mixed trains, and the mixed train charges of this character divided between freight and passenger on the basis provided in the formula, the freight proportion of such charges being added to similar charges for local freight trains. This concludes the text of Exhibit 3.

These two exhibits disclose the method employed in the compilation of the statistical information necessary to make the application of the provisions of the formula.

The application of the units and bases developed in accordance with Exhibits Nos. 2 and 3 are applied in subsequent exhibits (to which attention will be called later) to bring out the final results as to the cost of conducting the state freight and passenger business in the State of Arkansas. It may be noted here, however, that the information gathered in accordance with Exhibits Nos. 2, 2-A to 2-K and 3 was compiled and stated in percentage forms, for convenient use as factors for the various apportionments in Exhibit No. 6.

Mr. Hamilton testified somewhat in detail as to the application of the factors computed from the information compiled in accordance with the plans outlined in Exhibits 2 and 3, the factors being set forth in detail under the title "Units and bases prescribed by the formula for apportionment of expenses and values," and that these various units and bases were fair and reasonable use units and bases.

### The Test Period.

On account of the very great importance of the test made for the purpose of determining the relative cost of conducting the intrastate and interstate business of the railroad within the State of Arkansas with reference to the period covered by the test, as well as the manner of making it, we wish to call the attention of the court in detail the evidence, and the conditions disclosed by the exhibits, bearing on the fitness of the period used for the purpose of reflecting the average condition throughout the year. This proceeding was brought on July 18 and the injunction was granted on September 3, 1908. The business and operations of the months of September, October, November and December, 1907, during which time the inhibited freight and passenger rates were in force, were used on the application

for a temporary injunction for the purpose of showing the effect of those rates upon the earnings of the railroad. Other similar suits were brought at the same time, and evidence was taken in the cases of the St. Louis, Iron Mountain & Southern Railway and the St. Louis Southwestern Railway, and those cases brought to final hearing on May 11, 1911. The evidence in this case was not taken until after the decision of those cases by the Supreme Court (*Allen* v. *St. L. I. M. & S. Ry. Co.*, 230 U. S.), on June 16, 1913. The exhibits prepared in this case cover the business of the four months' period in 1907, and the fiscal years 1910, 1911, 1912 and 1913. The year 1909 was not included because of the difficulty of obtaining a part of the records of that year. The manner of conducting the test we think has been sufficiently described in what has been said heretofore, and in the exhibits and testimony referred to. As illustrating the thoroughness with which it was conducted, we here call attention to the fact that in the division of the terminal expense each individual station and yard in the state was treated separately, and the local condition of each yard is reflected in the details of the division, and, in the matter of switching by local trains, which has heretofore been determined by estimates and the opinions of witnesses, the actual time devoted by each local freight train to switching during the test period was ascertained. On this point we call attention to the evidence of Mr. Hamilton, pages 88 and 89 of the record.

We will now consider the evidence in connection with the representative character of the two months in which the test was made. A test of this character is necessarily limited in time. It can not be prolonged indefinitely on account of the very large expense involved. The im-

portant matter is the selection of a representative period in which to make the test.

On this point the testimony of Mr. Nay was taken, and, in connection with his evidence, we deem it proper to call attention to his well known character and qualification to speak on such a subject. His experience in railroad service began in 1883 as statistical clerk in the accounting department of the Missouri Pacific Railway Company; he later became traveling auditor for the St. Louis Southwestern Railway in Missouri, Arkansas and Louisiana, and later chief clerk to the general auditor of that road. For a few years he was auditor of the Minneapolis & St. Louis and the Iowa Central railroads. Since 1903 he has served with the Chicago, Rock Island & Pacific Railway Company as assistant comptroller, general auditor, and, during the last five years, comptroller of that system. He is everywhere recognized as a man of great probity of character and of unusual skill and ability, as is indicated by the station he has reached in the line of his employment in railroad service.

He testified that the test period used fairly represented the conditions throughout the year for the purposes for which the test was made; that the months of November and December were fair average months. That a similar test was made on the lines of the Chicago, Rock Island & Pacific Railway; it was first made for two months covering September and October. The results of this test were to be used in a case pending in Oklahoma involving rates in that state. The hearing of the case was postponed, and the test continued through the months of November and December, and a comparison of the work showed that the results of the four months were not substantially different from those of the two months; that no conclusion, or element, of the two months would have been different from what it was on the basis of the four.

He regarded the months of November and December, if anything, as rather favorable to the state, owing to the large movement of cotton in those months, practically all of which is interstate traffic and would add to the volume of that traffic over other periods in which but little of that commodity moved; that the tests are for the purpose of determining the relative proportions of intrastate and interstate, and through and local business, and when you cover a period of two months you have a pretty representative period in almost any part of the year, unless you select the smallest or the largest month. The test period is not an attempt to establish that the earnings are going to be more or less. Its object is to fix a cost relation between the different classes of traffic which exists in other periods. He stated that when figures are compiled, with all the detail that is provided in the formula for a two months' period, it is fairly representative of the business as it runs along from year to year, unless it is shown that conditions entirely different existed in other periods. That it would be more satisfactory if we had the results of a whole year, but it would cost probably a million dollars to do it. When we have found by actual experience that the four months' result has turned out to be substantially the same as the two months', he thought he might safely say that the two months are representative. In speaking of conditions of operation and traffic which should be considered in determining the normality, or representative character of the period employed in making the test, Mr. Nay stated that there should be similarity in the following conditions:

Similarity of mileage of the road in the two or more periods.

There should be similarity in the load, or number of tons and passengers per train.

In the average length of haul of freight or passengers. If that has remained substantially the same, it would indicate a similarity in the traffic conditions.

The relation of the empty car movement to the loaded car movement should be considered, and there should be a similarity in that respect. If there were a decided difference in that percentage from one period to another, it would indicate that there was some difference in the conditions in the two periods. If they are substantially the same, that would indicate similarity.

There is also the relation of the intrastate and interstate traffic. If they are substantially the same, that is, if substantially the same percentage of the total traffic was intrastate and interstate, it would indicate similarity of conditions.

Another matter is the proportion of the expenses, and the traffic, in the state to the total of the road. If in one period the expense should be, say, 15 per cent. of the total, and the traffic should be, say, 18 per cent., and in another period the expenses should be 13, 14, 16 and 17 per cent., and the traffic be within a few percentages, it would indicate similarity of conditions. Possibly there may be others, but those mentioned are what occurred to me when I gave the matter thought. It is not expected that in operating statistics different periods would be just the same, but they should be similar. No one of the conditions standing alone could be controlling, but they should all be taken in connection, and if, taken together, the relation between the road mileage was about the same, between intrastate and interstate, the empty car mileage and the loaded, etc., were the same, then I should think one period might fairly be taken as representative of another. (328, 380, 441)

It is apparent that as to most of the normality factors referred to a difference in the relations in the different

periods would affect the relative cost of intrastate and interstate business only remotely. The relative length of haul is the only factor that directly and materially affects the cost relations as between state and interstate traffic, and, as is elsewhere demonstrated, the difference in the relative length of haul in the test period and in the periods to which the test period results are applied results uniformily more favorable to the state than if the relative length of haul had been identical for all periods.

Mr. T. A. Hamilton testified that he made investigation for the purpose of testing the normality in the movement of freight traffic during the various periods covered by the exhibits in this case. The result of his investigation is embodied in Exhibit 34, which shows the average miles per freight car per day made on the railroad for the fiscal years ending June 30, 1908 to 1913, inclusive; also the four months ending December 31 in the years 1907 to 1913, inclusive; also for the months of November and December of the latter year, which was the test period. There is no material variation shown in these exhibits, the fluctuations not exceeding two or three miles on an average, which is negligible. In November and December, 1913, the average per day was 22.29 miles, while during the four months ending December 31, 1907, it was 22.18. He testified that the table embraced all of the cars that were on the railroad, whether moving or standing still, and all the mileage that was made each day by all the cars which actually moved, and that there could be no better index of the normal movement of freight traffic than the average miles made by the freight cars each day. He further testified that he knew from his own knowledge that there was no congestion or abnormality. (448-9)

The percentage of empty freight car mileage to the total freight car mileage in Arkansas during the four last

months of 1907 was 29 per cent., and during November and December, 1913, it was 29.41, being practically the same. (450)

Exhibit 37 shows the road mileage operated in Arkansas during these various periods, and it is practically unchanged, there being an addition of about 5½ miles in the year 1911, and an increase of 20 miles on the entire railroad, thus showing there had been no change in the territory served by the road. (450-1)

Exhibit No. 38 shows the train miles, net tons, revenue freight one mile, and revenue passengers one mile, per mile of road per day in the State of Arkansas, and Exhibit 39 shows the average haul of freight and passengers, intrastate and interstate, in the state during the periods covered by the exhibits, the latter exhibit being in the form of a graphic chart. The witness called attention to the fact that this exhibit did not show the average haul for the months of November and December, 1913, that data having been shown for the six months ending December 31st, of which those two months were a part, and explained that the factors necessary to produce the average haul figure for the months of November and December were not available. He was asked to explain the bearing these two exhibits have upon the question of normality, and stated:

> "On that general proposition I think it should be said that nothing short of an almost miraculous coincidence would produce the same operating conditions upon any given railroad or section of railroad in any two periods, that is, exactly the same operating conditions. There must always be some difference in various periods. Such differences are shown in some of the exhibits that we have here, and, perhaps, notably in these two, but these differences must be considered, it seems to me, not in and of themselves, but in the light of their effect upon the problem that we are endeavoring to solve here.
>
> We have taken the month of November and Decem-

ber, as has been previously explained in the record, as a test period in which to determine the excess cost per ton mile and per passenger mile of intrastate over interstate business. That is all we have used that test period for. It was intended to supplant the expert opinion, or the judgment, of railroad men, that intrastate cost so much more than interstate, as a matter of conjecture, or as a matter of experience, if you will, but we used this test period solely for that purpose to determine the percentage of extra cost of intrastate over interstate traffic, and we have carried those percentages back through all of these other exhibits, applied them to the ton miles and passenger miles in dividing the cost in the other years all the way back to 1907.

Exhibit No. 38, the one I have just offered, shows the train miles, ton miles and passenger miles per mile of road per day in Arkansas.

If you compare the test period of November and December, as shown in this exhibit with, for instance, the four months ended December 31, 1907—that is, November and December —you will note that four freight trains per mile of line per day hauled 1,280 tons, net, per mile of road per day, of revenue freight. That is an average of a little over 320 tons per train mile as against an average of the 230 tons per train mile in the four months ended December 31, 1907.

It will also be noted from the exhibit that operating exactly the same number of passenger trains per mile of road per day, that is, four, both in November and December, 1913, and in the four months of 1907, we hauled an increase of 74 passenger per mile of road per day in November and December, 1913, as compared with the four months of 1907.

Both of these comparisons, freight and passenger, indicate in a large way a cheaper cost per unit of traffic handled in the test period in November and December than obtained in the four months of 1907. Of course, that applies to all traffic, and there the intrastate and interstate are mingled in these tons and passengers on these trains that I have referred to, and it may be suggested here that we have offered nothing which will show the same relative cost be-

tween intrastate and interstate per ton mile and per passenger mile in these two periods.

If we turn to Exhibit No. 39, the chart that shows the average length of haul, we will see it shows the average haul of one ton, the average journey of a passenger, both state and interstate, for all of these periods. It will be noted that in the last half of 1913, the calendar year which included our two months' test period, the average haul of intrastate freight was 25.75 miles, and that this same average haul of intrastate, or within 3/10 of a mile, occurred back in 1907, where the average haul was 25.44 miles —that is, the four months of 1907 that we are concerned with. But the average haul of interstate freight has dropped down in the six months of 1913, which include our test period, from 82 miles to 76 miles. There is a decrease of six miles. It seems to me that that indicates plainly that considering the greater trainload and the resultant cheapened unit cost of all freight traffic, that the cost of all intrastate traffic per ton mile was less, as contrasted with the interstate traffic per ton mile, in the 1913 test period, than it was back in 1907. Therefore, so far as the freight traffic is concerned, the excess cost percentage of intrastate over interstate carried back from 1913 to 1907, has been too small. There is no question in my mind but that intrastate freight hauled an average of 25 miles carries a greater excess cost per ton mile over interstate freight hauled 76 miles, than does intrastate freight hauled 25 miles over interstate freight hauled 82 miles, and, as I previously stated, the intrastate haul of freight was the same in the test period as in 1907, but the interstate haul was six miles shorter in the test period than in 1907.

The burden of extra cost attaching to shorter hauls is the direct result of having a lesser mileage to spread the two terminals over. That is the point I had in mind there. Summed up, the whole function of the railroad's transportation culminates in the haul of traffic. That, to my mind, typifies more than anything else the nature of the cost of the service, and where the haul is shorter the unit cost is necessarily greater.

We have here a distorted relation. Our test pe-

riod shows that if we have an excess cost of intrastate over interstate which we have carried back into these other periods, if anything, it has been too small, at least as contrasted with 1907, and that is all that we have carried back from the test period, that percentage of excess cost.

As to the passenger traffic in this exhibit, virtually the same conditions as to length of haul appear in the two periods as in the freight service, and the same remarks would apply as to the percentage of excess cost.

On the other hand, if you consider the intrastate traffic by itself, the fluctuation and average length of haul, which is shown plainly in the chart in the exhibit—and that stands out prominently, that the average length of haul of intrastate passenger traffic in the last half of 1913, which included our test period, is the longest of any of the periods for which figures have been submitted, and for that reason we had the cheapest cost per unit of traffic, intrastate passenger, during that period." (451, 452, 453)

Exhibit 40 shows, in the form of a chart, the ratio of intrastate and interstate to the total freight and passenger traffic in the State. The effect of this exhibit can be best stated in the language of the witness:

"This exhibit shows that the intrastate passengers one mile were a larger proportion of the total passenger traffic in Arkansas in the months of November and December, 1913, and also in the four months ended December 31, 1907, than in any of the full fiscal years shown on the exhibit. To one familiar with conditions in Arkansas, the reason for this is plain. The fall period of the year is undoubtedly the heaviest period of passenger travel in this state. This is proven by the fact that the total passenger miles, intrastate and interstate together, in Arkansas, for the four months ended December 31, 1907, amounted to 14,207,000 passenger miles. Multiplying that four months' figure by three to get the year's figure, you get 42,621,000 passenger miles, whereas the actual passenger travel in Arkansas during that fiscal year was only 40,800,000 passenger miles.

Mr. Hill (to the witness): You haven't that on this exhibit?

A. No, sir; it is stated in Exhibit No. 27, those figures for the four months. This shows that multiplying the travel in Arkansas for the four months by three, you get considerably more than the total actual travel for a year, and that will seem to prove conclusively that the fall is the heaviest period of travel in this state.

The total passenger travel in Arkansas in the two months, November and December, was 9,895,000. You multiply that by six to get a year's figure, and the result is 59,300,000 passenger miles, whereas the actual passenger miles for the year in which these two months were included was but 52,400,000 miles.

It is further evidence that the fall and early winter months are the heaviest period of the year for intrastate travel along the same lines as indicated there, and, in fact, the chart shows it, but following the same line of thought as for the total travel it may be said that the actual intrastate passenger miles in Arkansas in the four months ended December 31, 1907, were 6,200,000 miles, in round figures. If you multiply that four months' figure by three you get a year's figure of 18,650,000. As a matter of fact, the actual Arkansas intrastate travel in that year was but 17,600,000, and relatively the same condition obtains in the two months' period of 1913, when you multiply by six to get a year's figure. It yields 24,000,000 intrastate passengers in Arkansas while the actual travel for the year was less than 22,000,000.

That would seem to explain why the percentage of intrastate travel to the total travel in Arkansas was greater in these fall periods than it was for the whole year. It is probably true that the crops in Arkansas have been marketed by that time, that is, the greatest single staple crop of the state, and that the people are financially better able to travel at that time than they are at any other period of the year; at least, the amount of travel would seem to indicate that.

The difference between the percentage of intrastate passenger miles to the total in the test period of November and December, and in the four months

ended December 31, 1907, is only 3 per cent., so that one would seem to be fairly reflective of the other. So far as this feature of the normality is concerned, I think that is a conservative statement.

Further, the test period of November and December used to determine the extra cost percentage of intrastate passenger travel over interstate may fairly be stated to have been a period which would show the minimum extra cost of intrastate travel for the reason that the entire cost of all passenger traffic, intrastate and interstate, was but 1.56 cents per passenger mile in these two months. That figure is deducible from the figure which gives the expense and the passenger miles for the test period in the exhibit." (454-455)

Exhibit 41 is also a graphic chart. It shows that in the last four months of 1907, 11.80 per cent. of the expenses of the entire railroad were assigned to Arkansas, and that during the same period there was moved in the state 11.28 per cent. of the total revenue ton miles of freight transported on the entire line; that during the same period the Arkansas proportion of the total passenger traffic of the entire railroad was 10.25. These traffic figures are expressed in ton miles and passenger miles. During the test period (November and December, 1913), the chart shows there was assigned to Arkansas 10.44 per cent. of the total operating expenses, or 1.36 per cent. less than the percentage shown in the last four months of 1907. At the same time it will be observed that the proportion which the freight traffic of Arkansas was to the freight traffic of the entire line was 1.8 per cent. less in the 1913 period than in the 1907 period, while the Arkansas proportion of the passenger traffic of the entire line was one per cent. more in 1913 than in the 1907 period.

Referring to these comparisons, Mr. Hamilton testified that:

"The variations in these percentages are small,

but it will be noted that the proportions of revenue traffic moving in Arkansas run fairly well hand in hand with the assignment of expenses to Arkansas. This, of course, covers all business, freight and passenger, intrastate and interstate, the object being to endeavor to show that the assignment of expenses to Arkansas has been fair, considering the proportion of traffic in Arkansas.

It will be noted, too, that so far as these fluctuations go, that where the proportion of freight traffic is smaller, the proportion of the passenger traffic is greater, that the proportions of expense assigned to the state run about level." (456)

Exhibit No. 52 contains a table comparing the maintenance of way and structure expenditures per mile of line in the State of Arkansas in the several periods covered by the exhibits with similar averages for the entire line of road, from which it will be seen that these expenditures run about level during all the periods, the expenditures for the two months in 1913 (November and December) being almost exactly one-half of what they were for the four months in 1907. In all the periods except the months of November and December, 1913, the charge in Arkansas per mile of line is a little in excess of the average for the entire railroad, which is accounted for by the table on page 1 of the exhibit, showing a material excess in bridges and trestles in that state, in the maintenance of which a larger expense would necessarily be incurred. In connection with this subject we call attention to the testimony of Mr. Hamilton at page 538 of the record.

We have dwelt at some length on this point because it is important that every material fact in connection with it should be brought to the attention of the court. The evidence we have recited is wholly uncontradicted. The defendants did not attempt to controvert it or produce any evidence on that point. The exhibits referred to establish beyond question the similarity of operating

conditions enumerated by Mr. Nay as proper tests for the purpose of determining whether the period in which the investigation or test was made was representative of other periods to which it was sought to apply the results.

The investigations in this case have been conducted in very much the same way that a manufacturer desiring to know the cost of producing the articles he manufactures would proceed. He arranges a cost accounting system concerning the facts of each operation or process, the time devoted to it and the labor expended upon it, on the spot where the manufacturing is conducted. This method is fundamentally sound because it studies the factors which reflect the use of the manufacturing plant in the production of its output, and gathers knowledge at the source. The Railroad Company in this case may be likened to a manufacturing business; it manufactures and sells transportation, and in the investigations made by it for the purpose of determining the cost of producing intrastate freight and passenger transportation, it proceeded in the same manner as such problems are treated in commercial manufacturing enterprises. It gathered the data essential to a complete knowledge of the facts controlling the cost of producing transportation of various classes on the trains, in the yards and at the stations where the traffic is handled. Having ascertained the facts at first hand concurrently with the daily operation of the plant, or railroad, there only remained the matter of making a correct application to the cost problem of the information so gathered. That this has been accurately done is not controverted by the defendants. A railroad can not, like an ordinary manufacturer, carry on an investigation of this kind beyond a limited time, as the expense of conducting such a test on a large railroad continuously would be prohibitive,

and for that reason, in making cost studies railroad officials necessarily have to confine themselves to a study of the factors influencing cost conditions, and the results, for comparatively short periods, which should be, and are, in this case, reflective of the ordinary normal operating conditions on the railroad. We submit, in conclusion, that the methods pursued in the investigations developed in this case are analogous to those employed in manufacturing plants, that the work was conducted with great care, and the results are as nearly correct, and as closely reflect the cost of the intrastate freight and passenger business, as it is practicable to make it.

It is proper at this point to say that all the records of the Railroad Company, including the calculations and detailed working data prepared in connection with the test, as well as the regular records, were submitted to and checked by the defendants' accountants, extending over a period of several months, and that no errors of any magnitude, or having any noticeable effect on the results, were developed by them.

The learned counsel for the defendants discusses this question from the standpoint of normality of the four months in 1907, rather than the test period in the last two months of 1913, assuming, as we understand the argument in his brief, that the value of the test must be determined by the normality of the former rather than the latter period. They also take it for granted that the plaintiff predicates its case wholly on the evidence as to the inadequacy of the earnings of the last four months in 1907. Counsel totally misapprehend our position; the purpose and effect of the exhibits filed, and the evidence introduced by plaintiff as to the effect of the enjoined rates, was to cover all the fiscal years from 1910 to 1913 and the four months in 1907. It was obviously necessary when plaintiff made its application for

temporary injunction at the commencement of the proceeding that it should select a prior period in which to make its preliminary proofs. For that reason the four months in 1907 were selected, because they were regarded as the first representative period after the rates complained of had been put in force. Plaintiff felt, however, that it would not be proper, or meet the requirements of the case, to confine the evidence, as to the effect of the inhibited rates, to that period after so long lapse of time had occurred before the hearing, and covered the entire period in which the records of the company were available, from the institution of the suit to the end of the fiscal year preceding the test. Exhibits 22, 24-26 cover all these periods, Exhibit 27-A covering the period in 1907. Evidence was introduced by plaintiff showing that the actual movement of business in the period in which the test was made was reflective of the traffic conditions that existed in the preceding periods, and for that purpose evidence was introduced showing in what respects there should be similarity of conditions in the different periods. These conditions having been established by the uncontradicted evidence, the exhibits taken from the records of the company, which are admitted to be correct, were filed and are fully explained, and the effect thereof pointed out in the evidence of Mr. Hamilton which we have quoted, and which we submit establishes such similarity in the movement of traffic, and in general operations affecting traffic, such as the empty car movement, the length of haul, the road mileage, the train miles per mile of road per day, and other conditions pointed out, as to leave no room for doubt, or reasonable question, as to the normality of the test period as compared with the preceding periods covered by the exhibits; and no reason has been shown why the traffic of the railroad should not have

run evenly and have been characterized by the same general conditions, throughout the five years covered by the exhibits and evidence. The condition of the country, and of business generally during that period, save for a short depression which began in the latter part of 1907 and ran through the year 1908, which is not covered by the exhibits was normal. There was nothing to disturb the even balance of trade or to create any unusual or abnormal fluctuations in the movement of traffic throughout the country. It would be strange if under these circumstances there had not been such similarity of conditions in traffic as is developed by the statistics and the evidence produced in this case.

In this connection counsel quote the following language in the Minnesota Rate Case (230 U. S., 559):

> "The wide variation in results obtained on the different hypotheses, each of which is earnestly supported in argument, illustrates the necessity for the keeping of suitable accounts, at least during typical periods, which will furnish correct statistical information bearing upon the cost of intrastate transportation as compared with interstate, instead of leaving a matter of such intricacy to general expressions of judgment."

The court, in the language used, was referring to the effort in that case to establish the cost relation of intrastate and interstate transportation by opinion evidence, instead of gathering suitable facts by tests made during typical periods for the purpose of establishing the difference in cost on the basis of facts, rather than conjecture. The record in this case shows that in selecting a typical test period, and in making tests from actual daily operating conditions, and in justifying the representative character of the period, and the results of the test by actual evidence based on ascertained facts and statistics taken from the record of the railroad company,

the plaintiff has tried to follow the suggestion contained in the quotation, and has collected such detailed facts and information bearing on these questions as has never before been presented in the record of any case of this character.

Judge Hill in his brief in the first Arkansas case, states he examined the original record in *Smyth* v. *Ames*, 169 U. S., 466, and found the test period in that case to have been two months. The opinion of this court in that case discloses that the test period results were applied to several prior years.

The statement of Judge Hook in his opinion in the case of *M. K. & T. Ry. Co.* v. *Love et al.*, 177 Fed., 493, presents a reasonable and fair rule, and we quote the same as follows:

> "Of necessity, it must proceed upon average conditions commonly known or shown to exist, and it argues nothing to say that it does not fully apply to this or that exceptional instance. A general rule based on experienced observation is fair, and what is lost by its application in one place is doubtless gained in another, and an equitable equilibrium maintained."

The trial court found the test period to be a normal one for test purposes, his final conclusions being stated in the following language (p. 916-7; 222 Fed., 548):

> "It is also shown by the evidence, and the court so finds, that the months of November and December, 1913, were normal months for that road in the State of Arkansas, as reflective of the year's business. By this it is not meant that the earnings and expenses of these months were exactly one-sixth of the entire year, but that the relation between the different articles of traffic and expenses based on the traffic are substantially the same for the entire year, and this was verified, it is shown by the witness Hamilton, by comparing them with the last four months of 1907. It was shown also that although the traffic during these four months constituted a

little over 36 per cent. of the entire year's business, the expense, as well as the use, were reflective of the entire year."

APPLICATION OF TEST PERIOD EXCESS COST RELATIONS TO PRIOR YEARS.

The excess cost of state over interstate freight per ton mile and the excess cost of state over interstate passengers per passenger mile as found in the 1913 test period was applied by the plaintiff to the corresponding units in the prior periods in the division of the respective freight and passenger expenses of such years between state and interstate. (Exhibits 24, 25, 26 and 27a.) That this application has, if anything, undercharged the state business is conclusively shown in the relations of the length of state haul to the interstate haul in the various prior periods, where, in case of both the freight and passenger, the length of the state and interstate hauls are wider apart than in the 1913 test period. (Exhibit 39.) This condition results in a greater excess cost of state over interstate in those periods than was applied and was found in the test period where the average length of haul of state and interstate traffic was more closely together.

As the excess cost of state over interstate traffic is due largely to the difference in the length of haul of these respective classes of traffic (442-3) it follows that as the length of the state haul decreases or the length of the interstate haul increases the ratio of state terminal handlings to interstate terminal handlings per ton mile or per passenger mile increases somewhat correspondingly which, in turn, results in additional excess cost of state over interstate. To illustrate, Exhibit 39 filed in this case, shows that in the freight service the average state haul was, in the 1913 period, 25.75 miles, and in the

four months of 1907, 25.44 miles, while the interstate haul was, in the 1913 period, 76 miles, and in 1907, 82 miles; thus in the 1913 period the relation of state to interstate haul was 33.88 per cent., while in 1907 it was only 31.03 per cent., or about 8 per cent. less, which automatically results in a correspondingly greater use of terminals and a greater excess cost of state over interstate than was found in the 1913 test, and as a result of applying the 1913 test cost relations in the division of 1907 expenses the state business was undercharged to the extent of using an excess cost factor which was 8 per cent. below the actual.

On the passenger side the average haul of state traffic was, in the 1913 period, 19.06 miles, and in 1907, 18.84 miles, while the interstate haul was, in the 1913 period, 39.89 miles, and in 1907, 42.59 miles; thus in the 1913 test period the state haul was 47.78 per cent. of the interstate haul, while in 1907 it was only 44.24 per cent. of the interstate haul, or about 8 per cent. less than in 1913, which results in a relative increased percentage of use of the terminals by the state traffic and a somewhat corresponding increased excess cost in 1907. Therefore, the application of the 1913 excess cost relation in a division of the 1907 expenses has resulted in undercharging the state passenger business in that period to the extent of using an increased cost factor which was about 8 per cent. less than the actual.

As showing that the relative state and interstate hauls are wider apart in all of the prior periods than they were in the test period and, therefore, no violence was done in applying the test period cost relations to the prior periods, the following information shown in Exhibit 39 is reproduced with the percentage ratios shown thereon:

FREIGHT.

| | Length of Haul | | Percentage of State to Interstate |
|---|---|---|---|
| | State | Interstate | |
| Test Period | 25.75 | 76.20 | 33.8 |
| Year 1913 | 25.55 | 80.42 | 31.8 |
| " 1912 | 27.97 | 85.58 | 32.7 |
| " 1911 | 23.74 | 79.46 | 29.9 |
| " 1910 | 21.26 | 77.19 | 27.6 |
| 4 mo 1907 | 25.44 | 81.97 | 31.0 |

PASSENGER.

| | Length of Haul | | Percentage of State to Interstate |
|---|---|---|---|
| | State | Interstate | |
| Test Period | 19.06 | 39.89 | 47.8 |
| Year 1913 | 16.31 | 47.67 | 34.2 |
| " 1912 | 16.42 | 46.36 | 35.4 |
| " 1911 | 17.90 | 47.22 | 37.9 |
| " 1910 | 16.52 | 42.51 | 38.9 |
| 4 mo 1907 | 18.84 | 42.59 | 44.2 |

METHOD OF APPORTIONMENT OF REVENUE TO ARKANSAS AND TO FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, AND MAIL AND EXPRESS TRAFFIC.

EXHIBIT No. 4.

In this exhibit there is stated in detail the method of allocation to Arkansas of intrastate freight and passenger revenues, and the apportionment to Arkansas of interstate freight and passenger and mail and express revenues.

This exhibit is, for the convenience of the court, printed as appendix No. 1, and appears at pages 283 to 298.

TAXES, RENTALS AND HIRE OF EQUIPMENT.

EXHIBIT No. 5.

Exhibit 5 describes the method of assignment to the state, and apportionment between the different classes of traffic within the state, of taxes, rentals and hire of equipment.

TAXES—The apportionment of state, county and municipal taxes between freight and passenger, intrastate, interstate, mail and express follows the division of the valuation of the property prescribed in the formula at pages 38, 38-A, 39 and 39-A as applied on page 8 of Exhibit No. 18. The Federal income tax was assigned to Arkansas in Exhibit No. 19 on the basis of the relation of the net earnings in the state to similar net earnings of the entire system in all the states. The proportion assigned to Arkansas was divided between freight and passenger, intrastate, interstate, mail and express on the basis of the net earnings of each class as shown in Exhibit No. 22. These assignments of state and Federal taxes are also contained in Exhibit No. 19. It is hardly necessary to state that property taxes follow the value of the property, and the income tax the earnings, because of the direct relation of property taxes to property values, and of income taxes to net earnings.

RENTALS AND HIRE OF EQUIPMENT—The manner of apportioning these items is explained fully in Exhibit 5, beginning on page 1 and continuing to page 4. Inasmuch as there was no controversy over these assignments, it is not necessary to deal with them in detail. It is sufficient to say that the division was made wherever possible on the basis of the actual use made of the rented property or facility, and, in regard to hire of equipment, that an analysis of the charges and credits to that account was made up from original vouchers, and the records underlying such bills and vouchers, for the purpose of segregating the charges and credits as between locomotives, passenger cars and other equipment. After the net amount of debit or credit was ascertained for each class of equipment, an assignment to the state was made on the basis of the mileage made by the respective classes of equipment in the state as compared with the mileage of the same class upon the entire road.

Much of this item is assigned automatically as between freight and passenger service by reference to the class of the equipment.

This exhibit is, for the convenience of the court, printed as appendix No. 2, and appears at pages 299 to 305 hereof.

SUNDRY TRANSPORTATION STATISTICS COMPILED FROM EXHIBITS 2, 2-A TO 2-K AND 3, INCLUSIVE, AND REDUCED TO A PERCENTAGE BASIS FOR USE AS FACTORS IN SUBSEQUENT APPORTIONMENTS.

EXHIBIT No. 6.

Exhibit No. 6 contains a table of sundry transportation and other statistics compiled and reduced to a percentage relation for use in making various apportionments. Thus, it includes engine ton miles in the freight and passenger service; revenue passenger miles in coaches and Pullman cars, with the state and interstate passenger miles for each; passenger handlings, both intrastate and interstate; train miles in the freight and passenger service; locomotive miles in the freight and passenger service; car miles in the freight and passenger service; passenger train car-foot miles, apportioned as between passenger carrying and auxiliary space, including baggage and dining cars; a division of yard service time in hours; of road service time in hours. Also the number of consignments of freight, state and interstate; loaded cars received and forwarded, state and interstate; net tons of revenue freight, carload and less than carload, state and interstate; net tons of company material and gross tons of revenue freight received and forwarded, carload and less than carload, state and interstate; gross ton miles of mixed trains, and net ton miles of revenue

freight, state and interstate, and revenue passenger miles, state and interstate; and the trains, freight and passenger, crossing bridges.

### Operating Expenses for Test Period of Entire Line, and As Assigned to State of Arkansas.

### Exhibit No. 7.

This exhibit contains a statement of the amount of each class of expense incurred on the entire railroad during the test period, and the amount thereof assigned to Arkansas, under the formula. The mileage of the system and of the state, respectively, is shown on the exhibit, and it appears that about 12½ per cent. of the mileage of the system is in Arkansas and 10½ per cent. of the total expenses during the test period was charged to that state.

### Division of Operating Expenses Between Line and Terminal.

### Exhibit No. 8.

Exhibit 8 divides the expense assigned to the state, and carried over from Exhibit 7, between line and terminal service. In the first column, opposite each item or account, there is a reference to the page of the formula (Exhibit 1) under which the division was made.

### Division of Oerating Expenses, Line and Terminal, Between Freight and Passenger.

### Exhibit No. 9.

Exhibit 9 contains a division of the line and terminal expenses in the state, following the division made in, and brought forward from Exhibit 8, between freight and

passenger service. This exhibit contains a similar reference to the pages of the formula under which the divisions were made, and the two exhibit (8 and 9) are based on the special investigation made and the records kept by agents, trainmen and yardmen as shown and described in Exhibits 2 and 2-A to 2-K, and the evidence introduced as to the proper division of locomotive and car repairs between line and terminal, to which we will hereafter refer.

The following evidence of the witness, T. A. Hamilton, as to the manner in which the information was obtained and the data collected, from which the division of the maintenance-of-way expenses between the line and terminal and freight and passenger service was made in the test period, will illustrate the method pursued with reference to all other divisions, and the means employed to obtain detailed and accurate information in regard to the extent to which the property and facilities, in the maintenance and operation of which the expense was incurred, were used in the various branches or classes of service to which it was devoted.

Mr. Hamilton testified:

> "It is first necessary to determine the proportion of maintenance-of-way expense which was chargeable to line service and to terminal service, that is, the portions of expense incurred in keeping up track and structures and appurtenances which were used by the line service, and which were used by the terminal service. To do that we had to get very close to the ground. In the months of November and December, 1913, we had our section foremen keep an actual account of the entire labor and material expenditures. It was done in this way: We went out on the line, sat down with each section foreman, took his time and material books (of which he renders one each month to the superintendent, who in turn reports to the auditor) and classified each track over which each individual section foreman

had charge according to its use as a line track or a terminal track, or common to line and terminal. If it was used exclusively for freight terminal service, we marked it as a freight terminal track. If it was used exclusively for line service, we marked it as a line track, and all our straight line tracks are common to freight and passenger. We had him then enter on each track section (five or six miles) each day, a division of his labor and that of the men employed under him, and material used as between these classes of tracks. His time and material books were fitted to the tracks which he had in his charge. In other words, we made a hole for him to put his figures into and numbered the tracks. If he worked on track 1 he charged track 1. We classified track 1 when we got his book, as a line track, or terminal, or freight, or passenger. We accumulated in that way the actual maintenance-of-way expenses for these two months. It is subdivided between freight and passenger tracks and line and terminal tracks. That also extends to the buildings, crossings and other matters that the section foreman keeps up.

As to the bridges, buildings, and similar structures, we maintain regularly what we call structure reports, in which the charges for repairs or maintenance of each building, each individual building, or each individual bridge structure, are kept separately. That is a part of our regular accounting scheme. We had, then, without extra effort the cost of repairs of individual buildings, bridges and trestles. It only remained to classify those according to their use as between line, terminal and freight and passenger. That was the basis of our line and terminal, freight and passenger division, of maintenance of way expenses." (107-8)

The same care that was exercised for the purpose of obtaining exact and detailed information upon which to base a division of maintenance of way expenses was exercised in every other branch and department of the service, as will be seen by reference to the description of the methods employed, contained in Exhibit No. 2, and

the forms upon which reports were required to be made by station agents, yard foremen, conductors and trainmen, including extra men placed on trains for the purpose of obtaining and reporting the information required in making the divisions between all other classes of service, with the instructions printed on the back of, or in connection with the forms, and the system of instruction imparted to the agents and employes who were charged with the duty of keeping record of the facts. When it was decided in the Minnesota Rate cases that the old bases of division of expenses, such as revenue, ton miles, etc. were not, alone, proper factors for that purpose, and that a basis must be found in the use made of the property, which would correspond to the extent of its employment in the business, it became necessary to find a means by which such an assignment could be made, and the expense of operation apportioned among the different branches of the service involved in transportation, ascertained and established by tests made in the actual use and operation of the property, and a ratio of cost established between the various lines of traffic based on actualities, or facts, rather than on opinion and expert testimony of railroad officials. The methods prescribed in the formula, and applied in the exhibits in this case, were devised by intelligent and capable men, whose experience fitted them for the task, whose purpose it was to devise a plan in conformity to the views expressed by the court, and whose combined judgment, we submit, is entitled to great weight and respect, as is supported by convincing evidence.

## Non-Revenue Service Adjustment.

### Exhibits 10 and 11.

Company property, material and employees, are necessarily moved from station to station on freight and passenger trains in the conduct of the transportation business. The cost of this service is a necessary charge on the revenue freight and passenger service, and it should be, and has been, assigned in such manner as to distribute the non-revenue service burden in proportion to the benefits accruing therefrom to each class of service.

The cost of line and terminal service respectively performed in the transportation of company or non-revenue freight and passengers is distributed over the revenue service in proportion to the direct cost of the different classes of service in the manner prescribed in the formula, Exhibit No. 1, page 37.

The manner in which this is done is set forth in Exhibits 10 and 11. The first of these exhibits explains the method of apportioning the cost of such non-revenue service between the freight and passenger and line and terminal service. In Exhibit No. 11 is shown the application of the adjustment of the cost of transporting such company material and non-revenue passengers between the freight and passenger revenue service, and between that part of the passenger train service devoted to the hauling of passengers, baggage, etc., and that part devoted to the hauling of mail and express. In addition to the explanation contained in Exhibits 10 and 11, the matter is fully explained by Mr. Hamilton (83-4) and Mr. Nay. (296-8)

There is no challenge of the necessity for such an adjustment, or of the manner in which the same was made. Such an adjustment is required between the freight and passenger service by the order of the Interstate Com-

merce Commission effective July 1, 1915, governing the separation of operating expenses between freight service and passenger service.

APPORTIONMENT OF PASSENGER TRAIN EXPENSES BETWEEN PASSENGER CARRYING AND MAIL AND EXPRESS SERVICE.

EXHIBIT No. 12.

This exhibit contains a division of passenger, "line and terminal," expense between the passenger-carrying service and mail and express traffic on the basis prescribed by the formula at pages 25, 26, 27, 31, 32 and 33. Some explanation has been given of the method of division here used in the text of Exhibit No. 3. In further explanation of the subject we quote the following evidence of T. A. Hamilton:

> "Exhibit No. 12 shows, the division of passenger expenses, both line and terminal, between straight passenger traffic, and mail and express, or, rather, it shows the results of that division. That has been made, in the case of line service, on what is termed the 'car-foot mile' basis. For the months of November and December, 1913, the actual consist of cars in every passenger train moving within the State of Arkansas was analyzed, and the number of lineal feet in each train assigned to the mail and express service, and assigned to all other passenger train service, were determined, the measurement of the space assigned in each car to each class of service being multiplied by the number of miles that that car ran in Arkansas. Those car-foot mile percentages have been used to divide between passenger service and the mail and express service, or, perhaps, I should have said the passenger carrying service and the mail and express service, the passenger expenses. The results of that division are shown in this Exhibit No. 12, which is herewith introduced.
>
> As explained in Exhibit No. 4, mail and express earnings have been assigned to Arkansas. Now, in

Exhibit No. 12, following the various preceding steps, we have set aside the mail and express expenses." (84)

Mr. Nay testified:

"Q. In making the division between freight and passenger you spoke of a moment ago, what did you do with 'mail and express?'

A. When we got the passenger proportion separated, we then set aside from the passenger expenses a car-foot mile proportion, as representing the expense applicable to mail and express.

Q. Why did you adopt the car-foot mile as a unit for making that division?

A. In my mind, there were two reasons: The first is, that it is about the only common factor between mail, express and the other portions of the passenger service. And then the United States Postoffice Department had adopted the basis in an investigation they made some years ago to determine the cost of carrying the mail on trains. They went into the matter very thoroughly at that time, and the railroad companies all prepared data showing the car-foot mile proportion. And my information is that that basis was pretty generally accepted, both by the United States Postoffice Department and by the majority of the railroads, as being fair.

Q. Is there any unit that so nearly represents the use derived from those classes of traffic, mail and express, of the facilities furnished by the Railroad Company for transportation, as the car-foot mile?

A. I know of no other unit." (295, 296)

APPORTIONMENT OF LINE PASSENGER EXPENSES BETWEEN COACH SERVICE, PULLMAN SERVICE AND OTHER PASSENGER TRAIN SERVICE AND BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

EXHIBIT No. 13.

This exhibit contains a division of line passenger expenses, as set forth in Exhibit No. 12 (after exclusion of

mail and express), between coach service, Pullman service and other passenger train cars, and between intrastate and interstate traffic on the basis prescribed in the formula at pages 25, 26 and 27. The principle upon which this division was made and the method of ascertaining and applying the car-foot miles, and the ultimate assignment of the expense incident to the various classes of cars used in passenger trains to intrastate and interstate expense have been referred to, but the following testimony of Mr. Hamilton states the matter so clearly that we here insert it:

> "In Exhibit No. 13, the passenger expenses, line passenger expenses, haulage passenger expenses, from which the mail and express car-foot mile proportion has been eliminated, are divided, first, between coaches, Pullman and other cars in the passenger trains, mail and express space excluded. That division also has been made on the basis of the car-foot miles, the lineal foot space assigned to coaches and in Pullman cars, and in the auxiliary cars, the baggage cars, the dining cars the observation cars and parlor cars, the proportions of which having been determined were multiplied by the miles each car ran, according to its use by passengers, or its provision for use by passengers. These car-foot miles have been used to divide expenses of line passenger service, mail and express excluded, between coach service, Pullman service and the auxiliary car service in passenger trains.
>
> Q. Auxiliary car service includes what?
>
> A. Baggage cars, dining cars and observation cars.
>
> I want to call attention to one item in Exhibit No. 13; the first column of the exhibit after the reference to the pages of the formula shows the total line passenger expense. Under the head of 'Maintenance of Equipment'—maintenance of locomotives—that total line passenger expense is divided between coaches, Pullman cars and other cars. The per cents. representing the car-foot mile proportions are shown at the head of the column, but in

the case of passenger train cars it will be noted that no allotment is made of that expense to Pullman cars, repair expenses of passenger train cars being divided between coaches and other auxiliary cars in trains, excluding the Pullman. That is for the reason that the company does not make any repairs of Pullman cars, except, however, accident repairs, and there are none of that character within this particular period.

The Court: Q. You mean under its contract the Pullman Company does its own repairing?

A. Yes. As a matter of fact, we may actually do the work, but we render a bill for our reimbursement. They stand the cost, they bear the cost. If we demolish a car in an accident we replace it, unless that accident be due to a defect in the car itself.

This exhibit shows for each division the percentages and bases on which it was made. After dividing the expenses between the coaches, Pullman cars and the auxiliary cars, the coach expenses, taken separately, are divided between intrastate and interstate on the basis of the passengers one mile who rode in coaches. That is an actual statement of the passenger travel in coaches for the two months.

It might, perhaps, be well to digress there and explain how the coach passenger miles and Pullman passenger miles are obtained separately.

The Court: Q. You charge up the expenses of each mile regardless of the number of passengers, and disregard the space of coach—

A. We first made the division between coaches and Pullmans and auxiliary cars. * * *" (84-5)

*This is the identical basis of apportionment employed and approved by the state in the Iron Mountain-Arkansas case.*

APPORTIONMENT OF LINE FREIGHT EXPENSES BETWEEN LOCAL AND THROUGH TRAINS AND STATE AND INTERSTATE TRAFFIC.

EXHIBIT No. 14.

The total line freight expense for the test period, having been ascertained in Exhibit No. 9 and charged with its proportion of the expense of the nonrevenue service in Exhibit No. 11, is apportioned in this exhibit between local and through trains (the freight proportion of mixed trains being included in local trains) and the expense of each class of trains is then divided between intrastate and interstate traffic in proportion to the net ton miles of each class transported in said trains, respectively.

It is a well known fact, accepted on all hands, that in the operation of American railroads, local freight trains are more costly to operate per train mile for transportation expenses than through freight trains. The local freight train is manned by a crew numerically larger than that of the through freight train, performs substantially all of the station work of loading and unloading freight, picking up and setting out cars at intermediate stations between district terminals; is a longer time upon the road in accomplishing a given mileage than the through freight train, all of which adds materially to the cost of operation per train mile. Further, the local freight train carries less tons of freight per train mile than the through freight train, which operates to make the cost of transporting a ton one mile on the local freight train greater than the cost of transporting a ton one mile on the through freight train. The evidence in this case has shown that the proportions of intrastate and interstate freight carried upon the local trains are different from the proportion of

those two classes of freight carried upon the through trains. It has, therefore, been considered proper in arriving at the cost of intrastate and interstate freight business respectively, to segregate first the cost of operating the through and local freight trains and then to subdivide such cost between intrastate and interstate traffic in proportion to the volume (ton miles) of intrastate and interstate freight carried upon each class of train considered separately.

This exhibit contains the result of the methods adopted under Exhibit No. 1 for separating and determining the expense of operating local and through freight trains, and the ascertainment of the amount of intrastate and interstate freight traffic carried on each class of trains. Under the methods heretofore used these divisions could not, or at least were not, ascertained with any degree of certainty, but rested largely on estimates made by operating officials. An effort was made in the Arkansas Rate cases (230 U. S., 553) to arrive at a proper division of expenses between local and through trains, and to determine the intrastate and interstate contents of each class of train, referring to which the court, after saying that the ultimate conclusion as to the returns from the business must depend upon the certainty of the proof with respect to the segregation of the results of intrastate operations, found that while the figures and calculations in the cases represented a serious effort to effect a reasonable apportionment, there was not enough data upon which to compute the extra cost of intrastate transportation with sufficient certainty. The court said at page 559:

> "The controlling factors, used in the computations, represent general estimates of the conditions of transportation, which may or may not be accurate, and there was an absence of satisfactory evi-

> dence, to take the place of the rejected tests, giving with requisite particularity the actual movement of traffic at the times in question, and affording a proper basis for the determination of relative cost."

In this case an effort, and we confidently assert a successful one, has been made to cure the defects in the proof referred to by the court. The calculations upon which the divisions of expense contained in the exhibits in this case are made, are based on the information obtained in the manner provided in Exhibits 2, 2-A to 2-K and 3, in which the history of the movement and the contents of every through train, every local train and every mixed train is given in detail and with as complete accuracy as is attainable by the employees and officials engaged in operating the trains, with the assistance of men specially detailed to supervise and assist in the work and see that the records were properly kept, and the results of whose labors were compared and checked by the waybills and other records regularly kept by the company, by which the certainty of proof required in the segregation of the results referred to by the court was obtained as nearly, we submit, as is practicable through human agency, not only with reference to the movements of the trains and the cost thereof, but also as to the amounts of intrastate and interstate traffic that move on them. On this subject we call attention to the testimony of Mr. Hamilton and Mr. Nay.

Mr. Hamilton testified:

> "In Exhibit No. 14 is taken up the division of line freight expenses between the intrastate and interstate traffic. It is first necessary to divide the expense between the local and the through train, the freight proportion of the mixed train being combined with the locals, because that is nothing but a

local train with a coach on the end of it. The actual assignment—the actual allocation of expenses between local and through freight trains was made of such items as directly attach themselves to those respective classes of trains. Wages, for instance, of enginemen and trainmen were actually allocated, taken from the company's payrolls and time slips for these two months. The fuel for road locomotives was actually charged out to the local and through trains.

Mr. Moore: Q. That is for each train, on each run?

A. Yes; I was coming to that. It was not necessary to make any special test to charge out the fuel, as was done in the Cotton Belt case and applied on assumption to the Iron Mountain, for the Frisco for a number of years has conducted a fuel economy campaign, in doing which it keeps records of the coal issued, in tons, to every engine on every class of train, upon every trip. We didn't have to make any special test to get the fuel charges to local and through trains; we already had it. In fact, we keep a great many separate statistics as to local and through trains for our own regular daily information. This is one of them. There is no assumption in that figure and no bringing over of the test on another road; it is our own actual coal issues to these two classes of trains and against which the fuel agent balances out his stock of coal and accounts to the auditor for it. In the main, such expenses as could not be actually allocated to local and through trains were divided between them on the basis of the gross ton miles in each class of train. That is, the entire weight of the train from the pilot of the engine to the rear platform of the caboose, including the contents of all the cars and including the average loading of the engine's tank or tender with fuel and water. The theory of that was this: We have here the line expense, as previously determined, the haulage expense chargeable to freight service. The use made of the property in incurring that expense is reflected in the trains which moved over the property. The pro-

portionate use was reflected by the size of the train and the best index we could find of size was weight. We took the weight of the entire train from end to end, and its contents, even the contents of the engine in fuel and water. Some items were not divided on a gross ton mile basis. Some were actually located. Some depended on other divisions, as, for instance, the operation of fuel stations was divided on the basis of the charge-out of fuel. That is an actuality, in reality, because the coal is charged out at an average price for the entire railroad, and the money charged for fuel is in reality directly translatable into tonnage, and surely there could be no better division of the expense of operating the fuel stations than the number of tons of coal that are delivered at those stations to local and through trains. That is the division that has been made.

The water expense for freight road locomotives has followed the fuel division, for the reason that a pound of coal burned in the firebox of a local freight engine will evaporate just as much water as a pound of coal burned in the firebox of a through train engine. The water consumption directly follows the fuel.

Aside from that, and the actual allocation of wages and fuel, the expenses have been divided between the local and through trains on the basis of the gross ton mile, actual. How those gross ton miles were obtained is explained in Exhibit No. 2. Having, then, the local train expense and the through train expense, the division of the local train expense was made between intrastate and interstate business on the basis of the net ton mile contents of the cars carried on local trains. That was determined as the result of an actual test, as described in Exhibit No. 2.

The same is true of the through train. We did not get the figures for the local train and deduct them from some total which was already of record and say that the balance was the through train, as was done in the Iron Mountain case, of necessity, because the State did not have the through train performance and could not get it at that time, but we also actually analyzed the through trains just as

thoroughly as we did the locals, and there was no process of deduction here. This is an actual analysis. That covers the division of line freight expenses between state and interstate traffic through the medium of the division between local and through trains." (86, 87, 88)

Mr. Nay testified at page 315: "The Frisco, in this case, has carried the 'line' freight expenses through to a conclusion as between local and through trains, and then have divided the expenses so subdivided, between local and through trains on the basis of the net ton miles in the respective trains, as between state and interstate.

That is the underlying principle all the way through, just as they had one principle which went through the division of 'line passenger' expenses. There it was separated between sleeping cars, day coaches and other cars, mail and express. Here the separation is between local freight and through freight; and practically the same principle that was applied to the 'passenger' is here applied, except that in the passenger it was applied to different sections of the trains, and in this case it is applied to different classes of trains, the local and the through.

I think that gives the principles, Judge Moore, and I think they are right. I think they are such as will produce the right conclusions, and get away from the increased cost estimate we used to have." (316)

## Division of Terminal Freight Expenses Between State and Interstate Traffic.

### Exhibit No. 15.

In this exhibit a division is made of terminal freight expense between intrastate and interstate traffic. Like Exhibit No. 14, it is based on Exhibits 9 and 11—the parts of said exhibits which relate to terminal freight expense. The following extract from the testimony of T. A. Hamil-

ton will explain the basis of facts upon which the divisions are made:

"This division has not been made, as was done in the Iron Mountain case, where the Interstate Commerce Commission's grouping of station expenses was divided on the basis of the state tons multiplied by two, and the interstate tons charged with one terminal, and that in the lump, for the state. The station portion of this terminal expense has been divided on the basis of the actual tonnage handled in and out of each individual station during the two months. In the Iron Mountain case the yard expense (a portion of which is found in this terminal expense) was divided on the basis of cars handled. The division here has been upon the basis of cars received and forwarded, but not in total for the state. Each individual yard was treated separately, and the expense of that yard treated separately, so there was no over-burdening or mis-distribution by reason of lumping all of the yards in the state and all of the cars handled in the state. The local condition of each yard is reflected in this detail division.

But there is more in this terminal expense than what is ordinarily known as station and yard service. In former cases there has always been a great deal of controversy as to how much switching the local freight train did on its journey each day. That has been a matter of assumption and conjecture. Here, for two months, we found out actually how much time each local freight train in this state switched, each local freight train on the Frisco in this state. We know how much time it devoted to switching and loading and unloading freight at each station every time every train stopped. We know how long it stopped for other purposes, such as taking coal and water, meeting and passing trains, or getting orders. That latter class of time has been charged to line service, because it is necessary for the running of the train over the road, not for the station delivery or receipt of freight. We have segregated the actual performance of these local and through trains and found out how much time they devoted to this terminal service, and we have divided that expense on the basis of that time. Heretofore there has al-

ways been buried in the case of both the local train and through train this item of expense, or element of expense, which had nothing to do with the moving of that train over the road. These are not haulage costs, but are really terminal costs. In fact, the local freight train supplants the switch engine, when it stops and works at a station for an extended period, a greater or shorter length of time, and that really is a yard function, a terminal function. It simply does that as a matter of economy and expediency to avoid keeping a switch engine there. We have analyzed that time, and have charged the station service time, the terminal time, to terminal service. It has not been buried in the haulage cost and charged to each ton mile alike, but it has been located to that station and charged to the tons that were handled at that station, state or interstate. That explains one of the vital differences in the method heretofore followed and the method that has been followed in these exhibits. This terminal cost that we are analyzing has been built up in that way." (88, 89)

Mr. Nay also testified on this subject explaining from his viewpoint the propriety of this division, as follows:

"*Mr. Moore:* Q. Will you now go to the apportionment of terminal freight between interstate and intrastate? I think you will find that on page 34.

A. Here the basis throughout is to divide these terminal freight expenses on the basis of the tons, in some cases net and in some cases gross tons, that use the terminal facilities.

Take accounts 2 to 10, which are the tracks and which are used by the cars containing the freight; that apportionment between intrastate and interstate is on the basis of gross tons of loaded cars handled on those tracks. And it seems to me no fairer basis could be used.

When we come to 'buildings, platform,' where the less-than-carload freight is handled, the division is on the basis of the net tons; so all the way through this division. The apportionment between intrastate and interstate is on the basis of the tons that use the facilities—or on the use basis.

Of course, there are certain accounts in here like 'superintendence' again, that are overhead expenses and are divided on the basis of other accounts. But still that is just the same as the use basis. They are divided on the basis of direct expenses, the latter having been apportioned on the use basis. That runs all the way through this section of the formula.

Q. And what you said covers 'maintenance of equipment' as well?

A. Yes, sir.

Q. On page 35, the 'Transportation expenses' are treated. The word 'consignments' is used in some instances there, is it not? Such as in 'Station employees,' Account No. 63.

A. Yes, sir. I forgot to mention that. The expenses of employees in the station are divided on the basis of the number of consignments—that is, the number of shipments—which is an entirely proper basis because it very frequently happens that one way-bill—a so-called 'blanket' way-bill—will cover a number of shipments or consignments, and there will be practically the same amount of work in connection with each consignment as if separate way-bills had been made for each consignment. In fact, there are some railroads in the east and southeast which are making a separate way-bill for each consignment. The division on those roads would be on the basis of the number of way-bills.

Q. To what class of employees does that refer?

A. That refers to clerical expense, the clarks or the man who makes the way-bills, and records them at destination. A separate freight bill must be made for each consignment. A blanket way-bill may cover fifteen consignments, consigned to fifteen different firms or persons in a city; and a separate freight bill must be made for each one, notwithstanding the fact that that was all covered by one way-bill and all moved in one car.

Another item I should have mentioned, that is not apportioned on the basis of the tons, is the 'terminal yard' expense. That is based on the respective number of state and interstate cars of freight received and forwarded. And the cars that contain both state and interstate freight are counted one-half a car to each class.

This is on the theory that it costs substantially the same for terminal service for all the state cars—that is, the same average for all of the state cars and for all of the interstate cars, regardless of the fact that one may contain forty tons of freight and the other five tons of freight.

This refers only to the 'yard' expenses, the switching and placing of cars.

Q. There are different classes of employees, or rather employees who discharge each class of service in the station and terminals?

A. Yes, sir.

Q. Their expense, I suppose, is assigned in accordance with the class of service rendered?

A. Yes, sir. For example, if there is a station where the agent is also a ticket agent, he has a ticket clerk or ticket seller, the wages of that ticket clerk would be assigned to 'passenger' and 'passenger terminal.' Then his wages would be assigned between intrastate and interstate according to the number of passengers at that station.

And if he were a way-bill clerk, it would be assigned to 'freight' or to 'terminal freight expenses' and be divided on the basis of the number of consignments handled at that station.

So, all the way through, each employee is assigned to the character of service he performs—or, assigned to the expense incurred by the service he performs.

Q. The difference in the method you have just described, and that pursued by the state in preparing its exhibits in the Iron Mountain case, is that all expenses were lumped without discrimination and then divided on a tonnage basis, is it not?

A. Yes, sir. And I have been impressed with the fact that those men had the same end in view that we have in this new formula, except they attempted to reach that end by arbitrarily adding to the mileage 50 per cent. to local mileage and switching, counting engine equipment as two and one-half cars, to equate their factors, etc. While in this formula we have attempted to go right to the expense, without any equation of factors, and get at the actual expenses just as nearly as it was possible to do so.

Q. This formula is based on the detailed analysis

of the different classes of service rendered and the expense incident to that class?

A. Yes, sir; it is.

Q. And that was lacking in the other method?

A. Yes, sir. This is a very expensive formula to prepare and it may be that the expense deterred all of us from going into the detailed analysis as we have done in this instance.

And then, there is another feature. In this formula the statistics that were necessary for making the apportionment have been gathered currently as the business was going on. It was impossible to gather those statistics on past business; that is, it is impossible for us now to go back to 1912 and gather statistics similar to these covered in November and December, 1913, because the records do not disclose the different details.

It is necessary to organize your force and tabulate these figures currently as the business is moving. And unless the statistics were kept in such elaborate detail all the time the expense of which would make it prohibitive, it would be impossible to go back and compile the data for any prior period." (317-320)

There can be no serious challenge of the basis of apportionment here employed. The factors used for each apportionment are shown at the head of the respective columns of each exhibit.

## Division of Passenger Terminal Expenses Between State and Interstate Passenger Traffic.

### Exhibit No. 16.

This exhibit contains a division of terminal passenger expense (after the exclusion of mail and express proportion, as set forth in Exhibit No. 12), between intrastate and interstate traffic on the basis of the formula (pp. 31, 32 and 33). In connection with the exhibit we call attention to the following statement from the testimony of Mr. Nay:

"The same theory runs all through the division of

the passenger terminal expense; that is, after segregating mail and express, the passenger proportion is divided on the basis of the passengers using the facilities. Not the passengers one mile here, because these are terminal expenses and the passenger who travels ten miles makes substantially the same use of the terminal as the passenger who travels 100 miles. The basis of the number of passengers getting on or off the train and using the station or other facilities, I think is the proper basis for division. I thing the formula speaks for itself. That same principle is used all the way through. (317)

The factors used for each apportionment are shown at the head of the respective columns of each sheet. There is an effort made to challenge these apportionments by argument but none by evidence.

COMPILATION OF PRIOR EXHIBITS BRINGING OUT EXCESS COST OF STATE OVER INTERSTATE TRAFFIC FOR TEST PERIOD.

EXHIBIT NO. 17.

This exhibit brings together and consolidates the expense incurred in each of the several branches of the revenue-producing freight and passenger service, as developed in the preceding exhibits by the application of the results of the test to the traffic actually conducted in each branch of the service in the state during the test period, thereby obtaining the unit of cost per ton mile and per passenger mile of the intrastate and interstate freight and passenger business, respectively, and establishing the cost relation between the intrastate and interstate branches of the two classes of traffic. It may conduce to a better understanding if we explain the manner in which the exhibit was made up. The exhibits which precede it, and accompanying explanations, describe in some detail how the expenses of November and December, 1913, were assigned to the state, and divided

between line and terminal, freight and passenger, the non-revenue service adjusted, and the expense of mail and express traffic excluded from the passenger expenses. Following that the division between intrastate and interstate traffic of the freight and passenger, line and terminal expenses, respectively, is explained. The final results of these divisions are shown separately in Exhibits 13, 14, 15 and 16. In Exhibit 17 the results of all these divisions have been assembled and the total intrastate passenger expense, line and terminal, added together, the total intrastate freight expense, line and terminal, added together, and so with the interstate, line and terminal, freight and passenger, and the total cost of each class of traffic shown. There is then shown the number of passengers one mile and tons one mile, intrastate and interstate, separately. The intrastate passengers one mile are divided into the total intrastate passenger expenses shown on the exhibit, and by this process the operating expenses per passenger mile for intrastate passenger traffic has been determined. The same process is followed with the interstate, the interstate passenger miles being divided into the interstate passenger operating expenses and the cost per interstate passenger mile ascertained. The exhibit then shows the relation between these two costs per passenger mile, and that the intrastate cost per passenger mile was 15.43 per cent. in excess of the passenger mile cost of the interstate.

The same process is followed with respect to the freight, the tons one mile of each class, intrastate and interstate separately, being divided into the total operating expenses of each class of freight. The operating expenses per ton mile of each class is thus obtained and the exhibit shows the relationship of these ton mile costs, which is that the intrastate exceeds the interstate by 319.58 per cent.

In former rate cases it has been conceded by all parties there there is an excess cost incident to the conduct of intrastate business, both freight and passenger, over interstate traffic. What this extra cost was in amount has heretofore rested upon expert opinion evidence. In the Arkansas Rate cases, reported in 230 U. S., the accountants for the state did, as heretofore mentioned, attempt in a crude way to work out this extra cost. Their work, however, was predicated almost entirely on assumptions, and, owing to their restricted facilities for gathering data, did not go very far into the details of operation. In the investigation, which has been referred to in this case as a test period, covering the months of November and December, 1913, the effort has been to work out the extra cost of intrastate traffic through a first-hand analysis of operating conditions conducted concurrently with the practical every-day operation of the railroad, the final results of which are shown in this exhibit.

Having determined the cost relationship of the intrastate to the interstate traffic, they have been applied to the division of expenses between the intrastate and interstate freight and passenger separately in the entire year ending June 30, 1913.

This exhibit is for the information of the court reproduced as appendix No. 3, and appears at page 305.

### Apportionment of Property Values, Taxes, Rentals and Hire of Equipment.

### Exhibits 18, 19, 20 and 20-A.

The total value of the property used in conducting transportation within the state is agreed to in a stipulation which is found at page 906 of the printed

record. The testimony of F. G. Jonah, the chief engineer of the railroad, and other witnesses familiar with the property, was taken prior to the agreement, and the results of their evidence are embodied in Exhibit No. 18, which also contains a distribution thereof among the various classes of traffic. The agreed valuation is less than that of the chief engineer, and scales it down horizontally to an amount which is 73.24 per cent. of the value as shown in said exhibit. The reduction does not disturb the proportions of value assigned in Exhibit 18.

The apportionment was made in compliance with the rules prescribed in the formula, page 38, 38-A, 39 and 39-A. The apportionment thus made follows the division of operating expenses, and is explained in the testimony of T. A. Hamilton at pages 249 and 446.

> "As I have stated, we divide the value of the property on the basis of the division of operating expenses, not in a lump, but, as Exhibit No. 18 shows, each class of property separately.
>
> The reason for that is this: We have assumed here and think we have succeeded in dividing our expenses on the basis of the use made of the property. If that is true, then the results of our division of the expenses reflects the use, and we have used those results to divide the property on the use basis in accordance with what we understood to be the Minnesota decision.
>
> Take Exhibit No. 18 as a text: We divided the property there, the roadway and structures—it is all set forth in the exhibit, but I will state it briefly—on the basis of the assignment of transportation expenses. That reflects the money spent in using, in a large measure, the roadway and structures in running trains over it and hauling traffic.
>
> So we felt that the transportation expense division, which we think has been made upon the basis of the use made of the property, might fairly be used to divide the roadway and structure value.
>
> Then as to locomotive equipment, we divided that

upon the basis of locomotive repair expenses, which we felt had been divided, through these various steps and ultimately between state and interstate, freight and passenger, on the basis of the use made of the locomotives.

We followed the same plan for passenger cars and freight cars. I think there was one exception there where we could assign direct, and that was some mail cranes, masts and arms, for taking mail onto a moving train, and we charged those direct to the mail. That is the theory on which that was handled. (249, 250.)

Judge Hill asked me why I had made my line division of property on the basis of transportation expenses and not upon the engine ton mile which I had used to divide the maintenance of way expenses. As a matter of fact, I thought that the maintenance of way expenses themselves, in this period, might or might not be reflective as between line and terminal. I know that the transportation use of the property, in a broad sense, was full every day in the year and, therefore, used that.

Following Judge Hill's suggestion we reworked those figures using the engine ton mile division. I have not prepared them in the form of an exhibit, but I have the effect of it here and have all the detail papers, which I will be glad to submit to the accountants for the State. I can make an exhibit out of it if desired, but I have not had the opportunity as yet.

I have made the apportionment of line values on the engine ton mile basis, as suggested by Judge Hill, and, taking the year ended June 30, 1913, as an example—we had time only to work up one of the years —I found the concrete effect of it is to reduce the value of property assigned to intrastate freight, 19 per cent.; to increase the value of property assigned to intrastate passenger, 18 per cent., and to make little or no change in the total intrastate values.

Carried with that change in the value of property is a change in the apportionment of taxes, which also goes to affect the return upon the various classes of intrastate business. The concrete result of the change, applied to Exhibit No. 22, is to change the

return on intrastate freight from 1.07 per cent. to .23 per cent.—that is, 23/100 of 1 per cent.—to eliminate entirely the return of almost 2 per cent. on intrastate passenger, and to leave the return upon the total intrastate business so small that you cannot find it with a microscope.

So, really, the engine ton mile basis makes no vital difference in our figures. I might have used it; I believe in it, but for the reason stated, I used the transportation expense. I have heard a great deal of commendation among railroad men of the revenue train mile. I have not worked that out here, but I believe the engine ton mile is, perhaps, a more reflective basis. If applied the other might show somewhat similar results.

Summing up the whole proposition, the change that we would make in our Exhibit No. 22 would still leave us a deficit of $32,000 on our total intrastate business. Of course, that is not affected by the change in the property values on the engine ton mile basis of distribution except as it switches the taxes a little bit, and that is a negligible change. We still have not sufficient to pay expenses and taxes on the face of this exhibit, so really the property value division becomes immaterial." (446, 447.)

The exhibits for the separate years in this case show that the earnings on the basis of the challenged freight and passenger rates are not sufficient, in any of the years covered by the investigation, to pay the expense of operation, except that in the fiscal year 1910 there was a net earning on intrastate freight traffic of 0.064 per cent. The matter of the valuation, therefore, ceases to be of any particular importance in this case.

Exhibit 61, which shows the average earnings of the four years, 1910 to 1913 inclusive, and in which the Kansas City, Fort Scott & Memphis Railway rental charge is eliminated and the stipulated value of the property used, shows a return on the intrastate freight business in the year 1910 of 32/100 of one per cent.; 1913, 31/100

of one per cent., and a deficit in each of the other years. For the intrastate passenger business, it shows a deficit in each one of the years, except in 1911, which shows a return of 1.26 per cent., and on the total intrastate earnings, freight and passenger combined, a deficit is shown in each of the years.

The method of apportionment of taxes, rentals and hire of equipment is explained in detail in Exhibits 19, 20 and 20-A. There is no controversy over these apportionments, and it is necessary, therefore, only to call the court's attention to the exhibits explaining the matter.

APPORTIONMENT OF OPERATING EXPENSES TO ARKANSAS FOR THE YEAR ENDING JUNE 30, 1913, AND DIVISION THEREOF BETWEEN FREIGHT AND PASSENGER, STATE AND INTERSTATE AND MAIL AND EXPRESS.

(Exhibit No. 21.)

This exhibit, as the heading indicates, contains an apportionment of operating expenses to the State, and the division of such expenses between freight and passenger, intrastate and interstate, mail and express, for the fiscal year ended June 30, 1913.

It sets forth in detail the application to the operating expenses for the fiscal year ending June 30, 1913, in their division between the intrastate and the interstate, of the percentages of excess cost of the intrastate business determined in the test conducted in November and December, 1913, shown in Exhibit No. 17. The following statement copied from page 1 of the exhibit will serve to explain how the application was made:

> "The operating expenses assignable to the State of Arkansas for the year ending June 30, 1913, and the division thereof between freight and passenger

service, were determined in accordance with the provisions of the formula filed as Exhibit No. 1, and the modifications thereof, as set forth therein, adopted by the St. Louis and San Francisco Railroad. (See also explanatory Exhibits Nos. 2 and 3.)

One exception made in following the basis laid down in Exhibit No. 1 (as modified) was in the adjustment, between the various classes of service, of the non-revenue service costs. The principle laid down in the formula was followed, but the adjustment of the non-revenue service costs for the year, was made on the basis of the similar adjustment for the months of November and December, 1913, as set forth in Exhibits Nos. 10 and 11. That is to say, the percentage of burden or relief on account of non-revenue service performed by one revenue service for the other in November and December, 1913, was applied in making the adjustment of non-revenue service costs in the operating expenses of the year ending June 30, 1913.

Another exception, in detail but not in principle, was that the passenger operating expenses in the five Interstate Commerce Commission groups under the heads of Maintenance of Way and Structures, Maintenance of Equipment, Traffic Expenses, Transportation Expenses and General Expenses, determined as hereinbefore set forth, for the year ended June 30, 1913, were divided between passenger, and mail and express on the basis of the relative percentages of car foot miles in mail and express and passenger carrying service, as determined for the months of November and December, 1913.

The proportion of passenger expenses chargeable to passenger carrying service (after elimination of mail and express proportion) was divided between intrastate and interstate passenger traffic on basis of the respective passenger miles of each class for the year ending June 30, 1913, there being added, however, to the intrastate passenger miles 15.43 per cent., in arriving at factors for this division, this percentage representing the excess cost per passenger mile of intrastate passenger traffic over interstate passenger traffic, for all passenger operating

expenses in the months of November and December, 1913, as set forth in Exhibit No. 17.

The freight proportion of operating expenses, determined as hereinbefore set forth, was divided between intrastate and interstate on basis of the respective ton miles of each class for the year ended June 30, 1913, there being added, however, to the intrastate ton miles, in arriving at factors for this division, 319.58 per cent., this percentage representing the excess cost per ton mile of intrastate freight traffic over interstate freight traffic, for all freight operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17."

In order that there may be no misunderstanding, we here call attention to the fact that the expenses appertaining to the total business in the State were actually allocated and assigned to the State by an analysis of the records of the company for the entire fiscal year, proceeding on the basis laid down in the formula filed as Exhibit No. 1. These actual State expenses for the fiscal year were divided between the freight and passenger services in detail for the entire year, the factors developed in the test period being applied to the division between freight and passenger in so far only as the adjustment of the non-revenue service costs between freight and passenger were concerned. This is set out in a note to page 2 of the exhibit.

In dividing the passenger expenses for the year between passenger and mail and express, the car foot mile percentages of the two months test period were applied, which is also shown in a note to page 2 of the exhibit. With these two exceptions the expenses of the fiscal year were allocated to the State and divided between the freight and passenger services in detail in accordance with the provisions of the formula.

In dividing the freight and passenger expenses between intrastate and interstate for the year ended June

30, 1913, the actual intrastate and interstate passenger miles and ton miles of that year were used as factors, with the addition to the intrastate ton miles and passenger miles of the extra cost percentages developed as shown in Exhibit No. 17. These divisions between the intrastate and interstate business are set forth in detail in Exhibit No. 21, and the resultant figures of operating expenses chargeable separately to intrastate and interstate freight and passenger carried directly into the income account statement for the fiscal year which appears in Exhibit No. 22.

This exhibit is for the information of the court reproduced as appendix No. 4, and appears at pages 306 to 310.

EARNINGS, EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND RATE OF RETURN FOR YEAR ENDING JUNE 30, 1913.

(Exhibit No. 22.)

This exhibit shows in detail the earnings and expenses, taxes, rental and hire of equipment upon each class of business conducted by the Railroad Company within the State of Arkansas for the fiscal year 1913, as ascertained in preceding exhibits which are referred to by number, and shows the net income derived from each class of business available as a return on the value of the property employed in each class of service, after deducting from the total operating revenues the operating expenses, State and Federal taxes, net rental and hire of equipment, and then shows the percentage of return yielded by each class of the business. The method used in dividing taxes, rental and hire of equipment, has been explained in connection with Exhibit 5.

The earnings are not based on the inhibited passenger and freight rates. After the injunction was granted, the Railroad Company reinstated the rate of three cents

per mile that had been in effect before the Act of February 9, 1907, prescribing a rate of two cents per mile, and this three-cent rate was in force during the entire fiscal year 1913. It also put into effect a schedule of freight rates higher than those prescribed in Standard Freight Distance Tariff No. 3, which was later modified, under an order of the court and a schedule of freight rates promulgated which were designated and commonly known as the "Court Rates," and these rates were in force during the fiscal year 1913. This is referred to in a note at the bottom of the exhibit, and the diminution in revenues upon the application of the inhibited rates to the business of the year, and the balance then available as a return on the value of the property, are set out, with the result that the net earnings on the intrastate freight business of the year, under the enjoined rates, would have been $800.15, and there would have been a loss on the intrastate passenger business of $65,428.85, and a loss on the freight and passenger combined of $64,628.70.

The value of the property upon which a return is compiled in this exhibit is that found by the plaintiff's chief engineer and not the value stipulated subsequent to the introduction of this exhibit in evidence. The return on the stipulated value, including all corrections made during the trial of the case, is shown in Exhibit No. 61.

This Exhibit No. 22 is for the convenience of the court reproduced as appendix No. 5, page 311.

EXPLANATION OF METHOD EMPLOYED IN ASCERTAINING EARNINGS AND EXPENSES ASSIGNABLE TO ARKANSAS AND TO FREIGHT AND PASSENGER, STATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC, FOR THE VARIOUS PERIODS INVOLVED.

(Exhibit No. 23.)

This exhibit contains in detail an explanation of the method employed in ascertaining the earnings and expenses assigned to Arkansas, and to the freight and passenger, intrastate and interstate, mail and express traffic, in the years ending June 30, 1910, 1911 and 1912 and for the 4 months ending December 31, 1907, the results so ascertained being carried forward and set forth in Exhibits 24, 25, 26 and 27.

It was deemed advisable to determine the effect of the inhibited rates on the earnings of the property during the preceding periods. It was impracticable to go back and make the same detailed analysis of the business as was made for the fiscal year 1913, and it was unnecessary to do so, for the Railroad Company, in making its reports to the State Railroad Commission after the year 1909, had made an assignment to the State upon a uniform basis, or formula, which it used in the year 1913, and is still using. It also had a formula which it used to divide expenses between freight and passenger service for its own operating comparisons. It had the result of the application of the old formulae (sometimes referred to as the Douglas formula), to the earnings and expenses in the State, and the earnings and expenses of the system in assigning them to the State, for the fiscal year 1913. It also worked up the result of the application of the new formula to the business of that year in minute detail account by account. It was found that the result of the application of the new formula to

the earnings and expenses bore a certain relation to the result of the application of the old formulae. Thus a given assignment of earnings and expenses to the State under the new formula would be, say, 98 per cent. or 102 per cent. of what is reported to the State Railroad Commission, under the old formula, and so on throughout the various divisions of the State traffic.

The comparison of the two formulae and the equating of the results obtained under the old formula in former years was equivalent, in effect, to going back and working up those years in detail on the basis of the new formula, and the relationship of the two formulae could be expressed in percentages.

The method pursued in making these equations is explained in Exhibit 23, pages 1 and 2, and the results of the application of the old and the new formulae in the assignment of the various classes of earnings to the State, in the assignment of operating expenses, freight and passenger, to the State, and the apportionment of expenses assigned to the State between freight and passenger business under the old and the new formula, expressed in percentages, are shown on the succeeding pages of the exhibit, which is printed in appendix No. 6, pages 313-21. We think the explanations contained in the exhibit in connection with the testimony of the witnesses Hamilton and Nay, at pages 103 and 332 of the record, will convey a clear understanding of the plan followed in making the equation and its effect. Referring to this subject, Mr. Nay testified:

> "I understand that they took the earnings or revenue, first; that they were redivided on the basis of this new formula and compared with the original results arrived at by the auditor.
>
> For the entire year 1913, and it was found that the results under the new formula, in each item of the earnings, was a certain percentage of the re-

sults under the old formula, and then those percentages were applied to the earnings of 1912, 1911, 1910, and the four months of 1907. Take the freight earnings: It is shown here that the percentage under the two formulas was 100.82 per cent. interstate, and 100 per cent. even intrastate. Of course, there would be no difference in the intrastate.

It was assumed that the difference between the results of the two formulas would be the same percentage in prior years, and I think it is a fair assumption that if the figures had been worked out in detail it would produce substantially the same result. There might, perhaps, be a difference of a few dollars due to the fractions, but the results produced by that equation are right.

Q. Is that a correct principle of cost accounting?

A. Yes, sir; and it would not matter if the old formula was wrong, the relations between it and the new formula would remain the same. It would always be the same, whether it applied to one year's business or another.

Q. The equating would overcome any error that might exist in the formula as used in previous years?

A. It would if the new formula is correct, and I believe the new one is correct. What I meant is the equation would reduce the figures of the former years to the basis of the formula now before us, and that is true of operating expenses as well as of earnings. I understand that a similar method was followed in connection with operating expenses: That it was found that under the new formula the operating expenses were so much; under the old formula they were so much, and the relation of each one of the five classifications—maintenance of way and structures; maintenance of equipment, traffic expenses, transportation expenses and general expenses was found, and then that same relation was applied to those five general headings of operating expenses for the previous years.

A. I think that is a fair and accurate method of reducing those earnings and expenses to the basis of the new formula. Of course, as I said before, if they were worked out in detail, the results would

> probably be a few dollars different one way or the other, but they would not be substantially different." (332, 333)

The relationship employed in the processes of equation described, based upon the complete application of both the old and new formulae, in the year 1913, is set out in detail in the figures contained in Exhibit No. 23, and the percentage relations thus established are applied in Exhibits 24, 25, 26 and 27-A to the earnings and expenses for the preceding years. The percentages thus applied are shown on pages 3 and 4 of Exhibit 23. Ninety-eight per cent. of the intrastate earnings, consisting of freight revenue, passenger revenue and special service train revenue, was susceptible of actual allocation so that the process of equation was only applied to 2 per cent. of the earnings.

The trial court considered this equating process very carefully and very fully (Rec., 913-15; 222 Fed., 544-6), concluding his consideration in the following language (Rec., 914-5; 222 Fed., 546):

> "In the opinion of the court, if correct factors are used, and the court finds that they were, this method of equation will secure results as nearly correct as is possible, when no separate accounts of the cost of the two classes of traffic have been kept."

This exhibit is for the information and convenience of the court reproduced as appendix No. 6, and appears at pages 313 to 321.

ASSIGNMENT TO ARKANSAS AND APPORTIONMENT BETWEEN FREIGHT AND PASSENGER, STATE AND INTERSTATE AND MAIL AND EXPRESS TRAFFIC OF EARNINGS, EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND VALUE OF PROPERTY: ALSO RATE OF RETURN EARNED, FOR THE YEAR ENDING JUNE 30, 1912.

(EXHIBIT No. 24.)

We now call attention to Exhibit 24, where the application of the method of equating is made to the business of the fiscal year 1912. It contains a complete statement of earnings and expenses in the State of Arkansas, apportioned as between the various classes of traffic. The first matter treated of is the apportionment of taxes. These are the actual taxes accrued in that year, and are apportioned on the basis of the division of property values, in the same manner as in the year 1913, as has been explained. It also shows the division of the actual rents, both charges and credits, for the year 1912, and the apportionment of hire of equipment charges actually incurred within the year, on the basis described in connection with Exhibit 22. On page 12 of the exhibit the equating percentages are applied, placing the earnings and expenses assigned to the State, and divided between freight and passenger and mail and express, upon the proper basis through the methods described in Exhibit No. 23.

On page 13 will be found the tables showing the equations of expenses on the bases of the percentages previously described. On page 14 these expenses, after their assignment to the State, and division between freight and passenger services in the preceding pages of the exhibit, are subdivided between intrastate and interstate, freight and passenger, separately, through the application of the percentages of extra cost intrastate over interstate, de-

termined in 1913, to the actual intrastate ton miles and passenger miles of the year 1912. The complete results for the year are shown on page 15 in the same form as in Exhibit 22 for the year 1913. The gross revenues from intrastate freight business were insufficient by $30,692 to pay operating expenses, taxes, rentals and hire of equipment. This is shown on the face of the exhibit. During that year the intrastate passenger traffic was on the basis of three cents a mile. Had the inhibited rate been applied, the exhibit shows that the intrastate passenger earnings would have been insufficient, by the amount of $38,078.18, to pay the expenses of the intrastate passenger business, taxes, rentals and hire of equipment and that there would have been a deficit of $69,770.19 in the conduct of the intrastate freight and passenger business combined. In this exhibit, and in Exhibits 25, 26 and 27-A, covering the preceding periods, 98 per cent., in round figures, of intrastate revenue, and all of the taxes, rentals and hire of equipment charges, are the actual figures pertaining to those periods, and are not produced as a result of the equating process; and when we come to the division of expenses between intrastate and interstate in all of these periods, the actual ton miles and passenger miles of each period are used, with the addition of the extra cost percentages determined in 1913, so that the equating process applied only to the assignment of 2 per cent. of the revenues and to the operating expenses in their assignment to the State and in their division between freight and passenger.

Exhibit 24 is typical of the three that follow, and what has been said in regard to it is equally applicable to the others. In this connection we call attention to the following evidence of Mr. Hamilton:

> "Exhibit 24 covers completely the results for the year ended June 30, 1912, arrived at on the basis which I have just described. I want to say, how-

ever, that after we got the earnings assigned to Arkansas, and had the expenses assigned to Arkansas, and divided them between freight and passenger service on the basis of this equation, we then divided them between interstate and intrastate on the basis of actual ton miles and passenger miles hauled in each of those years, state and interstate, with the same percentage of extra cost that underlies the whole thing.

In 1912, we were operating under the court tariff and on a three-cent passenger rate. On the basis of the court tariff rates, we did not earn enough to pay freight operating expenses, taxes, rentals and hire of equipment. On the basis of the three-cent passenger fare 4.34 per cent. If we had charged a flat two-cent rate, on the same volume of traffic, we would have been $38,000 short of earning our operating expenses, taxes, rentals and hire of equipment. There would have been a deficit." (104)

The equation rests upon the relationship of the results of applying the formula used by the railroad in making its reports to the State Railroad Commission, and for other purposes, and the new formula filed in this case. Mr. Hamilton, who is an expert cost accountant, as well as a man of very large experience in all branches of railroad accounting, and many branches of operation, stated of it:

"This equating process, as a matter of mathematics, is sound. I do not think anybody will dispute that. It needs only the assurance that the company's old formula results, upon which the equation rests, have been obtained upon a uniformly applied basis throughout all of the periods involved." (848)

*At the time these exhibits, including also Exhibit No. 22, were prepared by the accountants, it was assumed that an annual rental charge paid for the Kansas City, Fort Scott & Memphis Railway, a leased line, should be included in the operating expenses, but the matter having been brought to the attention of the court during the taking of the evidence, it was held that the rental was*

*not a proper charge, and Exhibit* 28, *eliminating that charge from the expenses shown in Exhibits* 22, 24, 25, 26 *and* 27-*A and showing the effect thereof, was prepared and filed.*

Defendants did not contest the soundness of the principle upon which the equation is based, but attacked it collaterally, so to speak. They introduced Mr. L. N. Simson, a cost accountant, who testified that the equating method had been applied only to the sub-total classifications; that is, to the total of maintenance of equipment, maintenance of way, transportation, traffic and general expenses; that had the percentages of difference been applied to the individual Interstate Commerce accounts, the equated figure for the four months ending December 31, 1907, would have been less than the equation of subtotals by $7,397.80. (612, 613) Mr. Hamilton was examined in regard to that, and testified that he had made the equation by individual Interstate Commerce Commission accounts, as Mr. Simson suggested it should be, and adjusted the company material burden as between freight and the passenger side in accordance with his views, and applied the per cents. resulting to each individual Interstate Commerce Commission account as assigned under the old formula to freight and passenger separately. If the equation had been made of the expenses in that way in detail, instead of assigning $7,397.80 less to the State of Arkansas, it would have assigned $8,400.38 more. (824)

In applying the old formula used in the year ending June 30, 1913, to the assignment of expenses to the State, the Auditor made some clerical errors. These were discovered by the accountants for the State in the course of their examination of the railroad records, and their nature and amount were explained by Mr. Simson in his testimony in connection with Exhibit G. The examina-

tion of the records showed that the Auditor, in the assignment of expenses in the formula used by him, assigned $72,107.48 to Tennessee, which should have been assigned to Arkansas under his formula. This grew out of a clerical error in the division of the terminal expenses at Memphis in the State of Tennessee. Upon investigation Mr. Hamilton found that Mr. Simson's statement was correct. They agreed that the error made a difference in the results of the equating process of $23,080.62, and that the expenses in Arkansas for the four months ending December 31, 1907, would be reduced for freight transportation $16,977.90, and for passenger transportation $6,102.72. (611, 839) Mr. Hamilton further testified that he did not discover the error in the application of the old formula until it was called to his attention in connection with Exhibit G, filed by Mr. Simson. That as soon as it was discovered, he worked the mistake out through all the calculations contained in Exhibit 27-A, and the result was that after the correction of the error, the gross earnings from intrastate business shown on that exhibit still left a deficit of $807.23 in operating expenses, with nothing to apply to the payment of taxes. (839-40)

At page 614 of the record Mr. Simson referred to certain items of expense which he stated should have been added to the State of Arkansas by the auditor in addition to the Memphis terminal item, which he treats of in Exhibit G. These items are yard supplies and expenses, wages of yard conductors and brakemen, wages of station employees, station supplies and expenses, and injuries to persons. Mr. Hamilton, being recalled on this point, stated that he made an investigation of the matters about which Mr. Simson had testified, and made the following explanation:

"As I understood Mr. Simson's statement, it was

that Mr. Douglas claimed to have made a direct allocation of certain items to the State of Arkansas, and that we did not get the same results when we made what we call a direct allocation under the new formula.

There seems to have been some misconception of what those items were.

Mr. Simson kindly loaned me his working sheets on that and I went over them. We found that they are a very large part of the same items that Mr. Simson reflects in his Exhibit G.

We will come to Exhibit G a little later, but the connection might as well be established here as not.

Exhibit G shows that in following what we term the 'old formula,' or, rather, our general auditor's regular formula for assignment to States, in the year 1913, Mr. Douglas set up part of the Memphis terminal expenses, which, on the basis of his formula, were properly chargeable to the State of Arkansas. Then, through a clerical error in his statistical department, those items were charged to Tennessee.

We, of course, based our equating percentages in 1913, in good faith, on Mr. Douglas' original assignment.

But we put that money actually into Arkansas, every dollar of it. Because we made a correct allocation.

So, then, the per cents. that we obtained did not reflect the proper equation, so far as those items were concerned.

Mr. Simson shows that in his Exhibit G, which I will show later.

I find in tracing out the items which Mr. Simson mentions on those pages of the records, that they are included in the same items which appear in Exhibit G.

So our direct allocation was not so very different from Mr. Douglas'. In fact, the spirit of them was not very far apart.

There can be but one construction of that, that these were items that did not require divisional or entire line prorate. They were practically all station and yard expenses, which would locate themselves geographically. We did not have to make a

prorate of them, except at the middle of the river at Memphis.

Mr. Douglas did directly allocate these items, but through an error of a clerk in his office, the Arkansas proportion was put in the Tennessee column. That is the whole thing in a nut shell. It is the same stuff that appears again in Exhibit G." (825)

Mr. Oliver, another accountant employed by the defendants, made the discovery that the auditor of the Railroad Company, in making the assignment of expenses to Arkansas under the formula used by him in 1907, had made certain errors in the month of September. The criticism was that the auditor did not use the formula consistently throughout, but used a different basis in September from that used in the following three months of that period.

The attention of Mr. Hamilton was called to it during the cross-examination, and upon looking into it he testified that Mr. Oliver was correct. The matter is explained by him at page 272, and the following pages of the printed record. He was then asked what effect the correction of the clerical errors spoken of would have on the assignment of expenses to the State made by the Auditor under the old formula in the four months of 1907, and testified:

"A. The corrections of the clerical errors and the reworking of Mr. Douglas' figures to make his application of his formula in September line up with what he did in the other three months (and has done ever since down to this present date), would make the following change in the figures that we showed in our Exhibit No. 27, covering those four months:

That is to Arkansas expenses in those four months —it would add for the 'Maintenance of Way and Structures,' $1,525.61.

It would deduct from the Arkansas expenses—because Mr. Douglas had over-assigned to Arkansas—from 'Maintenance of Equipment,' $2,524.48.

It would deduct from the 'Traffic Expenses,' charged to Arkansas by Mr. Douglas, $567.42.

It would deduct from the 'Transportation Expenses,' assigned to Arkansas by Mr. Douglas, $46,353.06.

It would deduct from the 'General Expenses,' charged to Arkansas by Mr. Douglas, $479.85; or a total net deduction from the Arkansas expenses, as Mr. Douglas assigned them (which we equated, of course, in our Exhibit No. 27) of $48,399.20.

Q. (By the Court): You mean, from the entire Arkansas busines, or the interstate business?

A. All the business within the State. That is just the gross assignment to Arkansas.

Q. Have you reworked Exhibit No. 27 for the purpose of showing the effect of those deductions?

A. Yes, sir; I have here Exhibit No. 27-A, which is an exact reproduction along the lines of Exhibit No. 27, with these deductions of overcharge in expenses to Arkansas.

Q. So the assignment of expenses to Arkansas on the basis of Mr. Douglas' old formula, in your exhibits covering the years ended June 30, 1913, 1912, 1911 and 1910, and the four months ended December 31, 1907, are now upon a uniform and consistent basis of division after you made the corrections in Mr. Douglas' 1907 figures, which you have explained?

A. Yes, sir; they are.

I have gone carefully over Mr. Douglas' application of his old formula for assignment of expenses to Arkansas and scrutinized his working sheets in detail for the years ended June 30, 1913, 1912, 1911, 1910, and the four months ended December 31, 1907.

After correcting the clerical errors in the four months of 1907, and the misapplications of the formula in the one month of September, the basis of division applied by Mr. Douglas in assigning expenses to Arkansas in these years—1912, 1911 and 1910—has been in exact agreement with the basis that Mr. Douglas used, item by item, in the year ended June 30, 1913.

We have been carefully over that entire ground, and know whereof we speak.

Further, after making this deduction of $48,399.20, as reworked in Exhibit No. 27-A, the four months

ended December 31, 1907, are also now, as to basis of division, in exact agreement with the methods employed by Mr. Douglas in the year ended June 30, 1913.

Q. Did I understand you to state on cross-examination that in your exhibits you have not accepted Mr. Douglas' assignment of expenses to this State as properly chargeable in the various periods which are covered by these exhibits?

A. No, sir. As an academic proposition, I think Mr. Douglas' bases are wrong. They are are not all use units, by any means. What we have done, however, is to determine the relation of what Mr. Douglas' formula brought in 1913 to what we got by completely reworking 1913 on a basis of our new formula, Exhibit No. 1, and when we had established that relationship we equated Mr. Douglas' assignment in the years 1912, 1911, 1910, and these four months of 1907, to a new figure on the basis of that 1913 relationship between the two formulas, and that is all explained in Exhibit No. 23.

But it does not make much difference whether Mr. Douglas divided these expenses in all these back periods by engine miles or potatoes, just so he used the potatoes consistently and used them in 1913, where we made our comparison of his results with the new formula. As a mathematical proposition, our equation is correct." (274, 275, 276)

The matters referred to embrace all the grounds of attack made on the method pursued in determining the earnings and expenses in the years preceding 1913 through the process of equation. *All errors in the application of the old formula were corrected and the figures reworked in Exhibit 27-A, which takes the place of original Exhibit* 27, *relating to the four months ending December* 31, 1907. The matter is so fully explained in the testimony that further comment is unnecessary.

We have shown how they were adjusted and the clerical errors which occurred in the accounts in 1907, and in the assignment of the expenses of the Memphis terminal in 1913, were corrected and adjusted, so that the old for-

mula was applied consistently in both periods and the equation made on the basis of the adjustments, and the result shown in the corrected exhibit, No. 27-A.

*The matters here discussed relate solely to the four months of* 1907, *and are not involved in any of the other periods.*

This exhibit is for the convenience of the court printed as appendix No. 7, pages 322 to 339.

APPORTIONMENT OF LINE MAINTENANCE OF WAY EXPENSES BETWEEN FREIGHT AND PASSENGER.

These expenses are those chargeable under accounts 2 to 10, Interstate Commerce Commission Classification, in effect at the time of the trial of this case, and are the expenses of maintaining tracks and track structures. The formula provides for locating such expense, as far as possible, to the freight and passenger services, according to their substantially exclusive use in either the freight or passenger service. The line tracks used in common by freight and passenger trains are apportioned under the formula upon the basis of engine ton miles computed on the weight of the engine in working order. The engine ton-mile unit consists of the weight of the engine in working order multiplied by the distance it moves in freight or passenger service.

In this case all of the maintenance of way expenses, as above described, that could be definitely assigned to the freight or passenger service, or line or terminal service, were so assigned, based upon data of actual expenditures for such maintenance kept separate by individual tracks and structures through record entries made by men in charge of such maintenance work. This detailed allocation left for solution only the problem of apportioning between the freight and passenger service the

maintenance of the main line track, or as it is called in Exhibit No. 1, line track and appurtenances, which is used in common by both the freight and passenger services. This basis was adopted after a careful study and investigation, and is considered the best and most accurate basis that can be applied to these expenses. (309) The weight of the engines in the respective classes of service represents the service required of, and rendered by, such engines, both as to hauling capacity and speed at which weight is transported. In the passenger service, the heavier engine is used to get more speed, rather than haul more tons. In freight service the heavier engine is used to haul more tons, so that in both classes of service the weight of the engine represents both speed and capacity to haul tons at the different speeds at which they are hauled in the freight and passenger services. The freight engine rating is based on the loading at drag speed (10 miles per hour). If it becomes necessary to make quicker time because the freight is perishable, or for other reasons, in order to do so the tonnage must be reduced so that when speed is a factor there must be less tonnage hauled. As the speed increases the capacity to pull is reduced. The use of the line track of a railroad by the freight or passenger service consists of the movement of weight, that is, trains and their contents, over the required distance at the speed which the nature of the traffic requires for its movement and under the service conditions and vicissitudes with which railway operation has to contend. The engine ton mile was selected as reflective of the use made by each of the two classes of traffic of line track and structures.

The importance of the locomotive as a factor in considering the causes of expenditures for maintenance is well illustrated by Mr. A. M. Wellington, in his treatment of the subject in "The Economic Theory of the

Location of Railways." We quote from Section 115 thereof as follows:

> "The locomotive alone causes by far the greater portion of the wear—how much is not positively known. Freycinet, a French engineer, writer, and politician of much prominence, recently minister of public works, estimates that the locomotive does three-fourths of the damage and the train itself only one-fourth. Launhardt, a German writer on the subject, after noting the fact that the locomotive and tender together constitutes only one-fifth of the total weight of train on the Prussian State railways (it would be considerably less in this country) considers that half the wear is due to the locomotive and tender and half to the train. This in all probability is a very moderate estimate. Experience on the gravity railways in Eastern Pennsylvania worked solely by inclined planes and carrying a heavy coal traffic with the ordinary vehicles, and with all other usual conditions except that no locomotives run over the rails, shows that the rail wear even of iron rails is very slight indeed under heavy tonnage, but with light loads per wheel; but exact figures of the wear cannot be presented. Mr. O. Chanute investigated this question somewhat by placing impression paper between the rails and wheels and determining the areas of the surface in contact. He points out that the pressure of the drivers approximates to the ultimate crushing resistance of the metal, and that the pressure per unit of area is very much less with ordinary car wheels. He therefore reaches substantially the above conclusions—that from one-half to three-fourths of the total wear of the rails originates from the engine alone."

The more important reasons for the use of the locotive ton mile are stated by Messrs. Nay and Hamilton, and supported by Messrs. Frates and Symons. Mr. Nay testified as follows:

> "We had a great deal of discussion as to the best basis to adopt in connection with this division; in fact, I presume that that part of this formula was given more attention than any other part. A study was made of the engines used in freight and pas-

senger service, and it was found that the passenger engines which hauled trains at a high rate of speed were practically of the same weight as the large freight engines which moved slower but pulled heavy trains. In some cases, the passenger engines of those high speed trains are heavier. We found in studying the situation that the weight of the engine really represented the service performed as to weight and speed.

In the old formula it was urged many times that speed was not considered. The argument for using the train mile basis was that the extra speed of the passenger train offset the greater weight of the freight train.

Q. Under the old method?

A. Under the old method, but, as I say, in studying the conditions we found that the weight of the engines actually did reflect the speed, in the case of the passenger engine, and in the case of the freight engine the weight which was pulled, and also the speed; that is, for greater speed and heavier weight you must have a heavier engine; for slower speed and a lighter train, you must have a lighter engine. Then, again, when it comes to that portion of your expenses—the ties, rails, track material and ballast, to a certain extent the heavier the engine the greater the damage done to the track, so that the weight there is an important factor.

We frequently strengthen bridges, put in heavier rail and additional ballast because of heavier engines put on, not because of heavier cars.

Taking all those things into consideration, we decided that the engine ton mile basis was the best basis that we could get which would represent the use, and by use combining speed as an element of use with weight and the distance traveled. Hence, the committee which framed this formula decided on the engine ton mile basis, and it has been used." (309)

Mr. Hamilton testified as follows:

"We took the engines which actually hauled passenger trains and the miles they ran, and we multiplied the miles made by each engine drawing the passenger train by the dead weight of that engine,

making an allowance for the contents of the engine tank or tender estimated at two-thirds of its carrying capacity in water and coal. That is, we took the weight of the engine complete, in running order, everything above the rails, and multiplied it by the mileage the engine made, freight and passenger, each engine separately, building up the freight and passenger engine ton miles. We did that for the reason that the question of the division of maintenance and (of) way expense, particularly the straight main line maintenance, has always been one subject of much discussion and heretofore has been divided on the basis of the revenue train miles on the theory that the extra speed of the passenger train compensated in the use it made of the track for the extra weight of the freight train. Then, it has been contended, or it has been stated, that only a minor portion, varying from twenty-five to ten per cent. of the actual upkeep expenses of the track is directly traceable and chargeable to the wear and tear occasioned by running trains over it, and that the other ninety per cent. to seventy-five per cent. of maintenance was the result of elemental action, the erosion of the bank, rotting of ties, deterioration of rails, deterioration of fences, buildings, etc., and that would go on if you never ran a train over a track, to a large extent.

We felt, that the best basis on which to divide maintenance of way, and one that would reflect a proper division both of that portion which is chargeable to the direct wear and tear by reason of the running of trains, and that portion which would accrue if you ran no trains, would be some unit that would really measure the use we got out of the track in freight and passenger service. There was only, so far as we could see, one common ground on which the freight and passenger service could meet, and that was the engine ton miles, and for this reason: The weight of your engine denotes not only its type, but the size and character of the train that you expect it to haul. It is conditioned to the service required of it.

The train behind your passenger engine consists of fewer cars than the train behind your freight

> engine, but your passenger engine is required to run, necessarily, at a greater speed. Your freight engine is required to pull a heavier train at a slower speed. It seems to us that the size of the engine being conditioned to the speed and weight combined, and expected to be met with in your freight and passenger trains, respectively, really was the best common unit of measurement of the use that you got out of your track as between freight and passenger service, because you use your track to pull trains of varying weights, at varying speeds, the locomotives in the freight and passenger service being accommodated as to the speed and the tonnage that you must handle." (109, 110)

J. A. Frates, the general superintendent of the St. Louis & San Francisco Railroad, also testified on this subject. This witness testified that he had an experience of about thirty years in railroad service; had been fourteen years with the St. Louis & San Francisco Railroad as assistant superintendent, superintendent, and general superintendent; that he supervised the engine ratings and was responsible for knowing that they were carried out in the operation of the road. That the ratings shown on the working time tables are obtained by actual pulling tests under normal conditions, and represent the maximum tonnage that can be hauled under such conditions at a speed of ten miles an hour. He was asked if it was practicable to reach the maximum potentiality in the average every-day practice, and stated that in operation the potentiality of the engine was reached, but not the tonnage maximum. He shows that an engine may be working at its full potentiality where the conditions are such that it cannot haul its maximum tonnage. In speaking of the effect of speed in connection with efficiency in the operation of engines, he testified that an engine which would pull 100 tons ten miles an hour would probably have to reduce the ton-

nage one-half to attain the speed required in an expedite movement. Mr. Frates explained in detail the effect of fluctuations in the condition of the weather and other elements that affect the capacity of engines. He testified that the practice is to assign a certain number of engines to a certain district to move all the business in that district. The volume of traffic may be heavier in one direction than the other. In such cases the train moving in the direction of the volume would move loaded and the train moving in the opposite direction to the volume would move light, or with reduced tonnage, and in such cases it is necessary to use an engine of the size adapted to the larger volume of the traffic in the reverse direction. He also described the local conditions that might affect loading on train runs, and explained how it often occurs that a train may start out of a terminal with light loading and be required to pick up at local stations along the line until it gets its maximum load. He also testified that in addition to the responsibility of the general superintendent the company provides a superintendent of locomotive efficiency, who is in direct charge of that particular feature and has an assistant on each division called "Assistant Superintendent of Locomotive Efficiency." It is the duty of these officials to fit the engines to the work that is required of them and to get the greatest efficiency possible out of the engines. They are held responsible for producing the most favorable results, and are required to show their performance, and if it is not 100 per cent., to explain why not. Their reports and explanations are followed up and if they are not reasonable, the officer is held responsible.

Referring to passenger service, he testified that the officials of the company usually assigned passenger en-

gines with reserve power to meet conditions that may arise, as it would not do to put an engine on a passenger train that ordinarily would have to work to its maximum, because if the engine was called on to handle an extra car, or adverse weather conditions should arise, it might not be able to handle the train satisfactorily on time. That the number of cars in passenger trains vary in accordance with the exigencies of the service. That the weight of the engine reflects its tractive power; that the size of the engines on the St. Louis & San Francisco Railroad were conditioned to the weight and speed of the trains they were expected to pull, both in freight and passenger service, in the interest of economy, for if we put an engine on a train with more tractive power than is necessary it is a waste of power, and therefore money, and so in the interest of economy we try to apply what power is necessary, and not to apply any more than is absolutely necessary to take care of the requirements. (805-23)

The only evidence given by defendants in opposition to the locomotive ton miles, is that of L. S. Mayer, who testified as a purported expert.

Through Mr. Mayer, there was introduced an exhibit marked "CC" which was compiled from the company's train loading records, by which it was endeavored to show that the engine ton mile was not a proper factor for dividing line maintenance of way expenses between freight and passenger, because the freight engines did not, in the period represented by his exhibit, pull 100 per cent. of their time card theoretical maximum drag rate tonnage. All of Mr. Mayer's comparisons of engine ratings are made solely on the basis of the tonnage behind the engine. These comparisons wholly disregard (1) speed, weather, traffic and other service con-

ditions, all important and frequently controlling; (2) that the locomotive potential rating is based on its pulling power at drag speed, while the average mileage movement per hour is frequently double the drag movement, and often from 3 to 5 times the speed of the drag movement. According to Mr. Symons' undisputed evidence (798-9) an increase in the speed is accompanied by a reduction in tractive power. We quote from Mr. Symons in explanation of his Exhibit No. 54 as follows:

> "Starting at a speed of 5 miles per hour the engine had a net tractive power of about 23,000 pounds.
>
> At 20 miles per hour, the engine had a net tractive power of about 18,500 pounds.
>
> At 30 miles per hour the engine had a net tractive power of about 15,000 pounds.
>
> At 40 miles per hour the engine had a net tractive power of 11,000 pounds, and at 60 miles per hour the engine had a net tractive power of about 5,900 pounds, although the potentiality of the engine was not necessarily affected." (798)

This is followed by an explanation of the factors of weather and service conditions, which further reduce the tractive power of the engines in actual service. (799-801)

Mr. Mayer's want of experience was such that he had no knowledge of the effect of traffic conditions, or of the manner in which speed affects the tractive power and performance of an engine. He did not even know what the term "tractive power" means (647-8); nor what constituted a ruling grade, or its effect on engine rating (652); nor anything of the speed at which an engine was expected to haul a load at the rating indicated in the time card. (653) Mr. Mayer also admitted he had no knowledge of civil or mechanical engineering and had never occupied an administrative, supervisory or executive position in the railway service.

It is evident that Mr. Mayer's attempt to measure the efficiency and service of a locomotive by the single standard of the weight behind the engine, without regard to engine rating, speed, weather service or other traffic conditions is meaningless. The importance, and frequently controlling effect of these conditions is fully explained by Mr. Frates, General Superintendent of the plaintiff railway. (805-23) We direct attention to the trial court's comments as to the witness Mayer, and his qualification to speak in reference to the matters with which he dealt. (917)

COMPARISON OF RESULTS OBTAINED BY USE OF LOCOMOTIVE TON MILE WITH THOSE OBTAINED BY USE OF EQUIVALENT TON MILE BASIS, RECOMMENDED BY THE COMMITTEE ON ECONOMICS OF RAILWAY LOCATION OF AMERICAN RAILWAY ENGINEERING ASSOCIATION.

It is a matter of public knowledge that the membership of the American Railway Engineering Association is composed of the leading engineers of the country having to do with or interested in railway location, maintenance, etc. While on the witness stand, Mr. Mayer, for the defendants, attached much importance to a supposed report of the Committee on Economics of Railway Location of this Association. But it developed that what he treated as the report of the committee was merely a dissent of an individual member of the association to the report of the committee on the subject. (672-3)

It appears from page 705 of the record, and also from Volume 14, page 579, of the American Railway Engineering Association Reports that the Committee on Economics of Railway Location consists of 12 members, the name of each

member of the committee, and his business connection, appears at page 705 of the record. It will be observed that about one-half of the members of this committee are engineers directly connected with the operation of important railway lines, and that the others are independent, consulting or contracting engineers. The impartial judgment of this committee, qualified by education and experience to speak authoritatively, is well worthy of the consideration of this court. That committee recommended as a proper factor for the apportionment of maintenance of way expenses between freight and passenger service the equivalent ton mile.

Mr. Mayer read into the record the material part of this report, some of which appears at pages 706-7, and the remainder at pages 709-10 of the record. The part of this report read into the record is as follows:

> "In studying average maintenance expenses by divisions for a period of years on the large system previously mentioned it appeared that the best unit of traffic measurement of expense was what we will term the equivalent ton mile. The total equivalent ton miles would be the sum of the following:
>
> Double the freight locomotive mileage times average weight per locomotive.
>
> Four times the passenger locomotive mileage times average weight.
>
> Total freight ton miles (cars and contents).
>
> Double the passenger ton miles (cars and contents).
>
> This unit considers that one ton of passenger car does double the injury of one ton of freight car, and that one ton of locomotive affects the track as much as two tons of the train back of the locomotive. This unit of measurement even best fits the increase of maintenance of buildings due to increase of traffic and consequent increase in number and size of buildings. Passenger traffic demands a higher type and better grade of maintenance than freight, and even a better type of shop buildings for repair.

With the exception of account 4, Rails, there is a minimum expense for the accounts affected by volume of traffic due to depreciation and decay. This expense must be met to keep the road in shape for operation. The increase in expense above this minimum is practically directly proportional to the equivalent ton mileage passing over the tracks. There may be slight loss of rails by corrosion, but its effect on the general account cannot be noticed and the cost can safely be considered directly proportional to the equivalent ton mileage." (706-707)

The remainder of this report, which was read into the record at pages 709 and 710 is as follows:

"One ton of passenger train does more damage to track than one ton of freight train and the locomotive creates more disturbance than an equal weight of cars and contents. Until data is available to correctly estimate the relative damage, it is recommended that the following ratio be used in estimating effect of traffic on the accounts in Group (a):

One ton of passenger car and contents produces approximately the effect of two tons of freight car and contents. One ton of locomotive produces approximately the effect of two tons of the balance of its train.

The total ton mileage reduced to terms of ton miles of freight car and contents is termed the equivalent ton mileage. * * *

Most of the accounts in Group (a) have a constant maintenance expense due to age and decay plus an additional expense depending on volume of traffic. This additional expense per mile of main track varies most directly with the equivalent ton mile. The equivalent ton mileage can be approximated by adding together the following:

Net freight ton mileage.

Double the freight locomotive mileage times average weight in tons.

Freight train car mileage times the average weight of empty cars (at present about 18 tons).

Double the passenger train car mileage times the

average weight of car and contents (at present about 44 tons).

Four times the passenger engine mileage times the average weight in tons."

In order that the court may have the benefit of a comparison of the results computed on the equivalent ton mile basis, as recommended by the committee with the results shown under the locomotive ton mile basis in the apportionment of maintenance of way expenses between the freight and passenger service, we have had computed from pages 1 and 2 of Exhibit 6 the freight and passenger equivalent ton miles. The computation is a simple one and not subject to controversy. The locomotive ton miles are first deducted from the total gross ton miles in the freight and passenger service, leaving as to the freight service the gross ton miles of freight cars and contents, and as to the passenger service the estimated gross ton miles of cars and contents. To these factors we have applied the multiples recommended by the committee, with the following results:

The freight equivalent ton miles computed on the basis recommended by the committee are 174,610,090, and the passenger, 184,481,798,—the freight percentage of the equivalent ton miles being 48.6 per cent. and the passenger 51.4 per cent., whereas the percentage assigned to the freight on the locomotive ton mile basis is 50.18 per cent., and to passenger 49.81 per cent.

It will be observed that the equivalent ton mile basis assigns 1.59 per cent. more of the maintenance of way and structure expenses to passenger than does the locomotive ton mile basis, and 1.59 per cent. less to freight than does the locomotive ton mile basis. It is particularly noteworthy in this connection, inasmuch as it is claimed by defendants that the engine ton mile basis overcharges the passenger, that the equivalent ton mile

recommended by the select committee of the great national organization of engineers, having to do with the maintenance of railroad properties, operates to charge 1.59 per cent. more of maintenance expenses to passenger than does the engine ton mile basis.

It is but fair to the court to say that upon the objection of certain members of the Association final action upon the report of the committee was postponed for future consideration.

### Engine Ton Mile Results Compared With Revenue Train Mile Results.

Some light may be thrown upon the reasonableness of the apportionment of line maintenance of way expenses between freight and passenger by comparing the results obtained by use of the engine ton mile with those used or approved in other cases. It is in evidence in this case that the revenue train mile had, prior to the trial of this case, been used for the apportionment of line maintenance of way expenses on the theory that the extra speed of passenger trains compensated in the use made of the track for the extra weight of freight trains. (109)

This basis seems to have been generally and continuously used by the railroad companies of the United States for many years for operating purposes and long before its used in rate litigation. *Trust Company of America* v. *Chicago, P. & St. L. Ry. Co.*, 199 Fed., 593, 596 and 610. On the authority of Judge Hill's brief in the first Arkansas Rate case, page 81, the revenue train mile was the basis used by the Union Pacific Railway Company in the apportionment of maintenance of way expenses in the case of *Smyth* v. *Ames*, 169 U. S., 466. The apportionment, therefore, on the revenue train mile

basis was found sufficient to warrant the granting of an injunction by the trial court and its affirmance by this court. The revenue train mile was used in the first Arkansas Rate case by the carriers and accepted and used by the State; *Allen et al.* v. *St. L. I. M. & S. Ry. Co.*, 230 U. S., 553. It was also used by the carriers in the Missouri Rate cases and accepted and applied by the State without criticism; 230 U. S., 474. It was again used in the Minnesota Rate case, controverted by the defendants and passed without criticism by this court; 230 U. S., 342. In the case of *Buell* v. *C. M. & St. P. Ry. Co.*, 1 W. R. C. R., 426, the Wisconsin Commission, after the most exhaustive investigation ever made by any official body into the apportionment of expenses between freight and passenger, uses the following language with reference to the revenue train mile basis of apportionment of maintenance of way expenses as between the two classes of service:

> "For these reasons it was concluded that the cost of the maintenance of way which depends upon the traffic should be apportioned between passenger and freight on the basis of the revenue train mileage, including switching mileage on some basis in the freight train mileage; and that the portion of these expenses which do not depend upon the traffic should be apportioned either in proportion to the direct operating expenses or in proportion to the respective gross earnings."

The Wisconsin Commission was measuring by one factor both line and terminal maintenance expense, the straight train mileage representing the line proportion and the switching mileage the terminal proportion, while in the case at bar the terminal tracks are set aside and apportioned on terminal units.

Perhaps the most terse and concise statement of the reason for the use of the revenue train mile basis for

the apportionment of maintenance of way expenses available is found in the evidence of Mr. Ludlam, the State's expert, in the first Arkansas case (187 Fed., 290; 230 U. S., 553), at page 2276 of the Iron Mountain record. We adopt and present his statement for the consideration of the court in this case. His statement is as follows:

> "In the case of the maintenance of way expenses they should be distributed, in my judgment, both the proportion which is direct and the proportion which is indirect—which has been referred to as being from 75 per cent. to 90 per cent. *against the use which is made of the maintenance of way, and the use which is made of maintenance of way is to run trains.* If it is true that only 10 or 25 per cent. of the maintenance of way expenses apply specifically to the operation of the trains over the track, then that 10 or 25 per cent., if it could be determined, should be apportioned specifically against those trains that cause the damage, and the remainder of the maintenance of way expense—which would be the indirect expense of maintenance of way—should be apportioned over the direct expenses of maintenance of way." (Italics ours.)

The engine ton mile basis assigns, for the test period, 50.19 per cent. of the maintenance of way expenses to freight and 49.81 per cent. to passenger, whereas the revenue train mile basis would have assigned 49.37 per cent. to freight and 50.63 per cent. to passenger. (Exhibit 6, pp. 2-3.)

The contention of the defendants is that the locomotive ton mile basis overcharges the passenger. It will be observed that it charges slightly less of the maintenance of way expenses to passenger than does the revenue train mile basis.

COMPARISON OF RESULTS UNDER THE LOCOMOTIVE TON MILE BASIS AND THE LOCOMOTIVE MILE BASIS FOR THE APPORTIONMENT OF LINE MAINTENANCE OF WAY EXPENSES BETWEEN FREIGHT AND PASSENGER.

In view of what was said by this court with reference to the apportionment of maintenance of way expenses on the road locomotive mile basis in the case of *Norfolk & Western Ry. Co.* v. *Conley*, 236 U. S., 605, 610, it will be of interest to compare the locomotive ton mile percentages with the engine mile percentages.

The locomotive ton mile percentages used for the test period assign 50.19 per cent. of the maintenance of way expenses to freight and 49.81 per cent. to passenger (Ex. 6, p. 2); while the road locomotive mile basis would assign 49.90 per cent. to freight and 50.10 per cent. to passenger,—the result being that the road locomotive mile basis would assign about one-third of one per cent. more of the maintenance of way expenses to the passenger service than does the engine ton mile basis. (Ex. 6, p. 3.)

With respect to the use of the locomotive mile basis for the apportionment of common maintenance expenses, this court in the Norfolk & Western case, *supra*, used the following language (236 U. S., 605, 610):

> "With respect to the operating expenses, it was said that for many years accounts had been kept for the purpose of separating the expenses incident to the freight and passenger traffic, respectively; that about 65 per cent. of these expenses could be directly assigned, and that the remaining 35 per cent., consisting of items common to both sorts of transportation, were divided between the passenger and freight traffic on the basis of engine miles,—this being deemed to be more equitable than the train mile basis originally used, inasmuch as most of the freight was hauled by two engines."

It is submitted that while the locomotive mile may be a more equitable factor than the revenue train mile, because such basis takes into consideration the use of more than one locomotive, the locomotive ton mile is more equitable than either, because it not only takes into account the use of more than one locomotive but also the difference in weight of the locomotive in the freight and passenger service.

Attention is again directed to the fact that the principal complaint of the defendants against the engine ton mile is that it charges more of the maintenance of way expenses to the passenger service than should be charged against that service. It will be observed that it charges less to the passenger service than the basis employed in the Norfolk & Western case, *supra*, and upon which the West Virginia 2c passenger fare law was declared confiscatory by this court, and which basis was deemed more equitable than the revenue train mile basis.

A RESUME OF THE RELATIVE PERCENTAGES OF MAINTENANCE OF WAY EXPENSES ASSIGNABLE TO THE FREIGHT AND PASSENGER TRAFFIC UNDER THE ENGINE TON MILE, REVENUE TRAIN MILE, ROAD LOCOMOTIVE MILE AND EQUIVALENT TON MILE BASES.

We present herewith for comparative purposes a resume of the comparisons heretofore made of the engine ton mile, revenue train mile, road locomotive mile and equivalent ton mile bases for apportionment of maintenance of way expenses between the freight and passenger service:

| | Freight | Passenger |
|---|---|---|
| Engine ton mile | 50.19% | 49.81% |
| Revenue train mile | 49.37% | 50.63% |
| Road locomotive mile | 49.90% | 50.10% |
| Equivalent ton mile | 48.6 % | 51.4 % |

It will be observed that of the 4 bases considered, all of which have the approval of the highest authority, the locomotive ton mile basis charges the smallest percentage of maintenance of way expenses to the passenger.

In this connection we again call attention to the fact that the chief complaint against the locomotive ton mile made by defendants is that it overcharges the passenger service.

APPORTIONMENT OF MAINTENANCE OF WAY EXPENSES BETWEEN FREIGHT AND PASSENGER ON THE BASIS SUGGESTED IN DEFENDANTS' EXHIBIT DD.

Defendants' Exhibit DD is a tentative study relative to the apportionment of operating expenses between the freight and passenger service, prepared by the statistician of the Interstate Commerce Commission, for consideration and criticism of those interested in such division. A copy of this study was transmitted to Mr. Mayer, who offered the same in evidence as Defendants' Exhibit No. DD. The reason for the division on the revenue train mile basis of that part of the maintenance expense caused by weather stress, as read into the record from the study, by Mr. Mayer, is shown at page 678 of the record, and is as follows:

> "Turning to the weather stress expense, or other expense independent of the traffic wear and tear: This must be distributed on some basis that measures use of track. If passenger trains weighed no more than so much air, and hence caused no damage to track whatever, they should, nevertheless, pay a toll for the use of track, because while on the track they monopolize it for a distance to the front and rear and prevent the use of that track by additional freight trains, if the point of congestion has been reached. Whether the train is long or short, heavy or light, it must have exclusive use of the track for a time. Hence, the train mile rather

than the ton mile or car mile is the best measure of track use."

Mr. Mayer at page 676 of the record estimated that 10 per cent. of the track maintenance expense is made necessary by use, and 90 per cent. by weather stress, He stated that he would divide the 10 per cent. on the gross ton mile basis, but declined to agree that it was possible to find any basis that would correctly apportion the remaining 90 per cent. However, in this connection he read the above quotation into the record.

Mr. Hamilton applied in Exhibit No. 60 (858-9) the basis suggested in Defendants' Exhibit DD, taking the percentages due to use and weather stress respectively, as stated by Mr. Mayer, with the result that it operated to decrease the amount of maintenance charged to freight by $1,253.31, and increase such charge to passenger by the same amount. It will thus be noted that the basis suggested in the Mayer Exhibit DD applied to his estimate of the percentage of maintenance made necessary by the use or wear and weather stress respectively operates to charge slightly more of the maintenance to passenger service and slightly less to the freight service than is charged by the engine ton mile.

ORDERS OF THE INTERSTATE COMMERCE COMMISSION RELATIVE TO THE APPORTIONMENT OF MAINTENANCE OF WAY EXPENSES BETWEEN THE FREIGHT AND PASSENGER SERVICE.

At pages 83 to 86 of the defendants' original brief reference is made to certain language of the Interstate Commerce Commission prescribing rules for the apportionment of expenses between the freight and passenger service, and also to the tentative basis applied in the Western Passenger Fares case, 37 I. C. C., 1. Following these references it is assumed that the Interstate

Commerce Commission has adopted, as an appropriate basis for the apportionment of maintenance of way expenses, the direct charge basis, and has condemned the use of the engine ton mile basis for such purpose.

The quotation from the order of the Commission appearing on page 83 of defendants' original brief is incomplete. Attention is called to the fact that the entire matter is set out in the discussion in the Western Passenger Fares case, 37 I. C. C., 13.

The actual order made by the Commission relative to the apportionment of maintenance of way expenses between the freight and passenger service is as follows:

> "That each said carrier shall maintain a record of its locomotive ton miles made in its transportation service, subdivided with respect to freight train service, mixed train service, passenger train service, and special train service. By the number of locomotive ton miles made by any locomotive is meant the product obtained by multiplying the number of tons (2,000 pounds) in the weight of the locomotive ready for service (but exclusive of tender when the tender is a separate car) into the number of locomotive miles made by it."

It will be observed that the Commission does not require the compiling of estimated gross ton miles (there is no means by which actual passenger gross ton miles can be obtained); nor can a computation be made of gross ton miles from reports regularly made by the carriers to the Commission. The order of the Commission requiring the compilation only of locomotive ton miles is in force to-day, without any apparent intention to modify the same.

This certainly does not indicate that the Interstate Commerce Commission has rejected the locomotive ton mile basis.

An examination of the discussion of the apportionment

of maintenance of way and structure expenses between freight and passenger service appearing at pages 12 to 23, inclusive, of the opinion in the Western Passenger Fares case (37 I. C. C., 1, 12-23) clearly indicates that the Interstate Commerce Commission applied a temporary basis in that case, leaving the matter, so far as the future is concerned, as it is in the order prescribing the basis of apportionment of expenses between the freight and passenger service, that is,—undecided,—and the locomotive ton miles alone to be reported.

Referring to the action of the Interstate Commerce Commission in the Western Passenger Fares case, and its application therein of the direct charge basis, attention is called to the following language (p. 22):

> "Difficult and elusive as is the problem of giving to these elements their proper weights, they are entitled to some consideration. We have, however, some difficulty in accepting the locomotive ton mile method for the reason that while it does to a certain extent give consideration to the speed of the trains as well as to their weight, we are not convinced that this is in *all* respects more certain in its foundation than is the gross ton mile method." (Italics ours.)

It would seem from this language there was some one phase of the locomotive ton mile basis as to which the Commission was not fully convinced.

They further say:

> "These expenses for maintenance of way and structures which apparently cannot be at this time directly allocated as between passenger and freight upon the basis of the costs should be divided between passenger and freight as nearly as possible upon the basis of their respective utilization of this part of the plant. If one could correctly measure and compare the degree of utilization of the track and structures by these two branches of the service this comparison might serve as a basis for the division of these unallocated expenses. What is the best measure that can be obtained of this utiliza-

tion of the track by these respective services? In the absence of any certainty that the scale of passenger fares and that of freight rates is properly proportioned, the revenue derived from the respective services cannot form a fair measure of this utilization. The absence of such a known relation between these charges, however, leads to an examination of certain expenses as probably indicative of the utilization of the track and structures. The fuel consumed by road locomotives *drawing* trains over the road; the lubricants water, and other supplies for these locomotives; the train supplies; the wages of trainmen and enginemen, are all separated between passenger and freight, and each by itself or the aggregate of all will constitute an index of the utilization of the *tracks* by these two branches of the service." (Italics ours.)

Following the statement of the accounts used in this particular case, the following language is used (p. 23):

"The common expenses are divided on this method between the two services in the proportion of the actual division of the seven preceding accounts. *Our decision to use this method in this case must not be regarded as conclusive on our part of the method that should ultimately be used for the division of maintenance of way and structure expenses between passenger and freight. The objections that may be urged against the direct charge method are known and appreciated.* If, for example, a marked increase in wages and trainmen on passenger trains takes place, the result under this method is to increase the amount of unallocated expenses assignable to passenger business, while the actual utilizations of the track and structures by the two branches of the service remain unchanged. *We are using these direct train costs in this instance to determine the apportionment of unallocated expenses between passenger and freight because the objections to this method seem less forceful than those that have been urged against any other methods proposed.*" (Italics ours.)

Considering the terms of the order of the Interstate Commerce Commission requiring the apportionment of

operating expenses between the freight and passenger service, and the opinion of the Commission in the Western Passenger Fares case, we think it may be safely assumed that the so-called direct charge basis was used as a temporary index of the utilization of the track in the two branches of service, for the purpose of the particular case under consideration, and that the Commission in no wise committed itself to the same as a proper basis for use in future cases.

It is also apparent that the principle endeavored to be applied by the Commission is that the cost of fuel consumed by road locomotives in *drawing* trains over the road, in connection with other expenses of train movement, might be temporarily used as an index to the utilization of the tracks by the freight and passenger service. However, the items charged to the freight and passenger service in accounts 80 to 85 and 88 and 89 do not accurately reflect the cost of fuel consumed by road locomotives, in moving trains over the road or the cost of other *train movement expenses* in the freight and passenger services respectively.

On the freight side these charges represent to a large extent the cost of fuel and other train supplies consumed by freight locomotives while waiting for passenger trains, for other freight trains, and while switching on terminal tracks. The same is true with reference to the pay of all freight train employees. If such fuel consumption and pay of train employees can be used as a reasonably accurate index to the utilization of the roadway by trains drawn over the tracks, there must of necessity be deducted from the passenger train expenses a proportion thereof representing non-movement time, and from the freight train expenses (1) a proportion thereof representing non-movement time, which is a much greater proportion of the whole than on the pas-

senger side; (2) a proportion thereof representing the cost of fuel, lubricants and pay of trainmen while the road engine is engaged in terminal switching service; (3) a proportion of this so-called direct expense to represent the services performed by the freight trains for the passenger business over and above that performed by the passenger trains for the freight business.

The evidence discloses that a very substantial part of the time of all road freight locomotive is spent in terminal switching service on freight terminal tracks, the maintenance and value of which in the case at bar has been assigned exclusively to the freight business.

The inclusion on the freight side as expense factors of *drawing locomotives over the road,* of fuel and other locomotive supplies consumed while the freight engine is standing on sidetracks waiting for passenger trains, other frieght trains or while switching in terminal service and of hauling company material, operates to very materially impair the availability of such expenses as an index to the utilization of the tracks by the freight and passenger service.

As a resume, therefore, it is submitted that the so-called direct expenses as used by the Interstate Commerce Commission are unduly swelled on the freight side:

(1) By the fuel consumed by freight engines and by pay of employees of freight trains while standing on sidings waiting for other freight and passenger trains, and while switching on freight terminal tracks.

(2) By the fact that such freight engines and pay of employees of freight trains are in large part expended by the hauling of fuel, lubricants and other supplies for the passenger service, and material for the repair of

roadways, tracks and other structures over which passenger trains are moved.

The evidence in this case unquestionably discloses that the service performed by the freight trains for the passenger traffic is much greater than that performed by the passenger trains for the freight traffic, and the direct charge costs could not be properly reflective without an adjustment of the service performed by the freight and passenger trains respectively for the passenger and freight service respectively. This is recognized in the order of the Commission requiring the separation of expenses between the freight and passenger service by the following language:

> "Carriers should indicate the total amount of credit which should be given to the freight service for work (such as carrying company fuel) performed for the passenger service and vice versa."

The Commission says with reference to the direct charge basis: "The objections are known and appreciated." (37 I. C. C. 1, 23.) Some of the objections were known, but perhaps not fully appreciated. No one having urged the direct charge basis in the Western Passenger Fares case, and no one, therefore, having protested against it, naturally, the Commission's attention was not directed to many of the objections to such basis, with the result that there was mentioned only those which occurred to the writer of the opinion.

It is stated at page 86 of the defendants' original brief: "The Interstate Commerce Commission did not have the data for all of the direct costs, and applied only such as it did have." We agree with counsel that the data used by the Interstate Commerce Commission was incomplete, and have indicated above what we believe it was necessary for the Commission to have in order to get approximately correct results, and feel we have dem-

onstrated that if the Interstate Commerce Commission had available all of the factors the result would have been substantially identical with that obtained by using the locomotive ton mile basis for the apportionment of line maintenance of way expenses between the freight and passenger service.

The incomplete factors used operated to overcharge the freight and undercharge the passenger business.

For these reasons, in our judgment no importance whatever can be attached to the employment by the Commission of the direct charge basis in the Western Passenger Fares case. The defendants are in the position of in one breath saying the factors employed by the Commission are incomplete, and the conclusions meaningless, and in the next of asserting that the basis employed was correct, and represents the mature judgment of the Interstate Commerce Commission in the apportionment of expenses between the freight and passenger service.

The opinion of the Interstate Commerce Commission in the Western Passenger Fares case, *supra,* was announced after the submission of the Arkansas case to the trial court, so that plaintiff had no opportunity to present the results computed upon the basis of the apportionment between freight and passenger tentatively used by the Commission in that case. The impression is endeavored to be conveyed in the defendants' briefs that an entirely different result would have been obtained had the Interstate Commerce Commission direct charge basis been applied. Inasmuch as all of the factors for making this computation are in the record, we have, for the benefit and convenience of this court, computed what the result would be if a substitution were made of the direct charge basis for the locomotive ton mile basis in the apportionment of line maintenance of way expenses between the freight and passenger service. That is to say,

in making the computation, we have used, instead of the locomotive ton mile percentages for the test period, the direct charge percentages, for the test period, chargeable to the freight and passenger service respectively in the accounts used by the Interstate Commerce Commission in the Western Passenger Fares case. Otherwise the process by which the results are arrived at are identical with that employed in the compilation of plaintiff's exhibits showing the net returns from operation as to the state freight and state passenger business.

As a result, we find that the use of the direct charge basis, in lieu of the locomotive ton mile basis, for the apportionment of line maintenance of way expenses, operates to increase the amount of operating expenses assigned to intrastate freight by 0.97 per cent., and to decrease the amount assigned to intrastate passenger by 4.84 per cent. Applying these percentages to the fiscal year 1913, we have the following results:

| | |
|---|---|
| Intrastate freight expenses as assigned (Exhibit 61) | $218,366.56 |
| Amount of increase by reassignment on direct charge basis | 2,118.16 |
| Intrastate passenger expenses as assigned (Exhibit 61) | 309,699.69 |
| Amount of decrease as a result of reassignment on direct charge basis | 14,989.46 |

| | Freight | Passenger | Total |
|---|---|---|---|
| Balance available as return (Exh. 61, p. 2) | $4,517.64 | $35,332.72 (Deficit) | $30,815.08 (Deficit) |
| Percentage of return (Exh. 61, p. 2) | 0.31% | None | None |
| Increase in intrastate freight and decrease in intrastate passenger and total expenses | 2,118.16 | -14,989.46 | -12,871.30 |
| Balance available as return with maintenance of way expenses apportioned on basis of accounts 80 to 89 (omitting account 81) | 2,399.48 | 20,343.26 (Deficit) | 17,943.78 (Deficit) |
| Percentage of return | 0.17% | None | None |

It will thus be observed that for the fiscal year ending June 30, 1913, applying the direct charge basis, there is a return from the intrastate freight business of 0.17 per cent.; a deficit as to the intrastate passenger business of $20,343.26, and a deficit on the combined freight and

passenger intrastate business of $17,943.78. The return of 0.17 per cent. shown for the intrastate freight is computed upon the value of the property assigned to the freight service on the transportation expense basis. If the assignment had been made on the direct charge basis the percentage would have been about 0.15 per cent. greater as to the freight and about 0.15 per cent. less as to the passenger. It will be noted that there is an operating deficit of $20,343.26 as to the passenger side.

The year ending June 30, 1913, fully demonstrates the result of the application of the direct charge basis, and it is not necessary to carry the same into the statistics for the other years involved.

### Apportionment of Equipment Repairs Between Line and Terminal Service.

The apportionments of maintenance of equipment expenses between the line and terminal service, as carried in the plaintiff's original exhibits are (except as to freight locomotives, which were considered on the time basis) computed on an average of the judgments of the general managers of the principal western roads. Prior to the trial of the case, however, the plaintiff employed Mr. W. E. Symons, a consulting mechanical engineer of long experience, to make a careful investigation and study of the causes which make necessary expenditures for the maintenance of equipment in the line and terminal service respectively.

Mr. Symons is a mechanical engineer of national reputation having large experience in designing, constructing and maintaining locomotives and cars. His skill and judgment in these matters is sought by railway officials throughout the entire country. A resume of his experience appears at pages 465 to 468 of the record. Mr.

Symons has no railway connection but maintains an office in Chicago as a consulting mechanical engineer, and is employed as an expert by the railroads in every section of the country, in the designing, construction and maintenance of locomotives and cars. He was, therefore, well qualified to speak on the subject matter involved. Mr. Symons made a careful independent investigation of the matters involved, and as a result thereof found the following percentages of maintenance expenses of locomotives and cars were made necessary in the line and terminal service respectively (466-88):

| | Line | Terminal |
|---|---|---|
| Freight locomotives | 66. % | 34. % |
| Passenger locomotives | 70. % | 30. % |
| Freight cars | 35. % | 65. % |
| Passenger cars | 82.5% | 17.5% |

Mr. Symons' evidence explaining his method of apportionment, his reasons therefor, and the percentages obtained appear at pages 466 to 484, inclusive, of the printed record.

It will be observed that these percentages differ somewhat from those based upon the average of the opinions of the general managers (except freight locomotives which were on time basis), which are shown on page 1, Exhibit 51, to be as follows:

| | Line | Terminal |
|---|---|---|
| Freight locomotives | 75.08% | 24.92% |
| Passenger locomotives | 64.94% | 35.06% |
| Freight cars | 36.03% | 63.97% |
| Passenger cars | 64.94% | 35.06% |

The effect of applying the Symons percentages to locomotives and car repair expenses of the railway company in Arkansas in each of the periods covered by the exhibits is set out in sheet 2 of Exhibit 51, from which it appears that the net increase or decrease in intrastate expenses is not in any of the periods of sufficient importance to make a perceptible change in the figures shown in Exhibits 22, 24, 25, 26, 27-A and 61. In each of

the years there was a small decrease in the intrastate passenger operating expenses, with almost an identical corresponding increase in the intrastate freight operating expenses, the net result of the application of the Symons percentages being to reduce in some instances and increase in other instances the total operating expenses charged to the state business in the several years involved as follows:

| | |
|---|---|
| Year ending June 30, 1913 (Decrease) | $731.10 |
| Year ending June 30, 1912 (Decrease) | 20.39 |
| Year ending June 30, 1911 (Increase) | 354.73 |
| Year ending June 30, 1910 (Decrease) | 344.60 |
| Four months ending Dec. 31, 1907 (Increase) | 46.01 |

This apportionment is the only question in the case that depends upon expert judgment. The extent of maintenance made necessary in the line and terminal service respectively cannot be arrived at by any direct mathematical computation. It must be, and therefore, has been adjusted upon the basis of judgment and experience. This was recognized by the defendants in their effort through Mr. Simson to make a purported apportionment upon the basis of the supposed experience and impression of someone else.

Mr. Simson for the defendants made an apportionment of equipment expenses between the line and terminal service by attempting to adjust to the line and terminal basis the contributing causes for maintenance of equipment as stated by Mr. Berry at page 695 of the Report of the Proceedings of the Fifth Annual Convention of the American Railway Engineering and Maintenance of Way Association, held in March, 1904. The line and terminal percentages arrived at by Mr. Simson in his attempted application of the Berry tables are as follows:

| | Line | Terminal |
|---|---|---|
| Freight and passenger locomotives | 58.48% | 41.52% |
| Passenger cars | 63.88% | 36.12% |
| Freight and work cars | 61.72% | 38.28% |

(607-9; Deft. Ex. F.)

By comparison, it will be observed that Mr. Simson assigned 41.52 per cent. of the freight locomotive maintenance to terminal and Mr. Symons assigned 34 per cent. to terminal; that Mr. Simson assigned 41.52 per cent. of the passenger locomotive repairs to terminal and Mr. Symons assigned 30 per cent. to terminal; that Mr. Simson assigned 36.12 per cent. of the passenger car repairs to terminal, and Mr. Symons assigned 17.5 per cent. to terminal; that Mr. Simson assigned 38.28 per cent. of the freight car repairs to terminal and Mr. Symons assigned 65 per cent. *It will be observed that in every instance except that of freight cars Mr. Simson assigned a much greater percentage of such maintenance expense to terminal than did Mr. Symons.* Mr. Symons is an acknowledged master of the subject, while Mr. Simson frankly testified that he had no knowledge that would qualify him to deal with the matters involved. (606-7)

The trial court's finding in this matter is so clear, explicit, complete and convincing that we submit the same in lieu of any comment upon the subject. We quote from pages 920 to 923 of the records as follows:

> "The formula for the maintenance and cost of equipment is found on page 9-a and 9-b of Exhibit 1 of the Company. This has also been severely criticized by the State. The witnesses introduced by the company testified to the correctness of this formula. In addition to the Company's own employees it introduced Mr. W. E. Symons, whom the testimony shows to be a mechanical engineer of great experience and high reputation in connection with that branch of the railway service, not only in operating but designing cars and locomotives. The high standing of Mr. Symons is evidenced by the fact that in some few matters he criticized the formula prepared by the railroad managers, which was used as the basis of the Company's exhibits, and thereupon changes were made by them in accordance with his suggestions. For the last few years he has retired

from active railroad service and acts as consulting engineer. He also acts frequently as arbitrator in cases of damages growing out of injuries to freight cars and locomotives on different lines. The confidence reposed in him is shown by his employment as consulting engineer by the leading roads of the country, to aid them in improving their equipment owing to his knowledge and experience from the thorough and minute investigations made by him of causes and results. Among his employments was that of securing information with respect to the actual expense of repairing locomotives, freight and passenger cars. It was claimed by Mr. Simson, who is an expert accountant, and stands high in his profession, that the bases adopted by the Company are wrong, and those found in an article by Mr. Berry should be adopted. Mr. Symons testified that in his opinion 80 per cent. of the expense of repairing freight cars is due to rough treatment, and only 20 per cent. to the use of the car under normal conditions as to use; that after allocating or subdividing each expense item between line and terminal, the result was the allocation of 75.7 per cent. to terminal and 24.3 per cent. to line; but having in mind certain damages done to cars in line work which he estimated at 10 per cent. he deducted that from the terminal, and added it to line, making the final figures 65 per cent. to terminal and 35 to line. He files as an exhibit a summary of division of freight car repairs between the line and terminal, based on an investigation of four lines, the Santa Fe, Rock Island, the M. K. & T. and this road, as confirming his conclusions. He also files as exhibits photographs of damaged cars, showing the damage done by rough treatment and another exhibit showing how he subdivided the different parts of a car in making his investigations. Repairs to freight cars he assigns 35 per cent. to line and 65 per cent. to terminal. Repairs to passenger coaches he assigns 82.5 per cent. to line service and 17.5 per cent. to terminal. Locomotive repairs he assigns to local freight engines 60 per cent. to line and 40 per cent. to terminal; to through freight engines 68.4 per cent. to line and 31.6 per cent. to terminal; to local passenger engines 64 per

cent. to line and 36 per cent. to terminal; through passenger engines 71 per cent. to line and 29 per cent. to terminal. Typical passenger trains 82.5 per cent. to line and 17.5 per cent. to terminal, including through and local trains.

In his testimony he stated in detail how his investigations were made, and his reasons for each subdivision. He filed itemized statements of the different parts of each item which he considered, and the reasons for his conclusions. The higher cost charged by him to terminal for locomotives than for cars he explained to be due to the fact that 'the entire engine performs more work entering and leaving terminals than any other unit in the train, the application of the brakes being more destructive to the engine.' On the part of the State, Mr. Simson, who frankly admitted that he is only an accountant, with no knowledge or experience of any kind in the management of operation of railroads, prepared his statements of these costs from the tables used by Mr. Berry in a paper prepared by him and read at a meeting of the American Railway Engineer and Maintenance of Way Association held in 1904 on the subject of 'Reduction of Gradient and Elimination of distance curvature and rise and fall on the Union Pacific Railroad.' Mr. Berry is very eminent in his profession as a civil engineer engaged in constructive work, but as he admits that he did not possess the necessary knowledge as a mechanical engineer, he adopted the tables prepared by Mr. A. M. Wellington and Professor Webb (of neither of whom Mr. Simson had ever heard) affecting operating expenses, and from these tables Mr. Simson assigns:

| | Line | Terminal |
|---|---|---|
| For engine repairs | 58.48% | 41.52% |
| Passenger cars | 63.88% | 36.12% |
| Freight cars | 61.72% | 38.28% |

In making these figures Mr. Simson does not express any opinion as to whether the tables he used were correct or not, as he admits his lack of knowledge to form such an opinion. He finds that the Company's method is 24.5 per cent. in excess of terminal and a similar per cent. too little for line expense. The tables used by Mr. Berry did not make any di-

vision between line and terminal, but Mr. Simson, taking the different items, allocated them between line and terminal as he assumed they should be, although he admits that he knew nothing of this matter. In his testimony he states:

'I found nothing in Mr. Berry's tables to guide me in making a line and terminal division in any of his subdivisions of cost of repairs. Mr. Berry had no line or terminal division in mind in his paper.'

Coming back to Mr. Wellington's tables, Mr. Simson (Symons) testified that 'these tables were first published in 1877; that the data for them was secured from the Atlantic and Great Western Railway, which was first a broad gauge railroad and then was changed to standard gauge; that the freight cars then used were flimsy as compared with those of the present day and cost about five hundred dollars. The equipment then in use (freight cars, locomotives and coaches) has no application whatever to present day conditions.' He further says: 'An illustration: Mr. Wellington assigns a certain percentage of contributing causes to make up and starting out trains. It was customary in those times for an engineer and fireman to get up in the morning and build a fire in the locomotive and while steam was raising they would get their breakfast; then they came back and switched out their trains, and after they had switched a long time they took their train and proceeded over the road. There are no such conditions nowadays at all. There were very few yards in those days except the yards that were used by trains when they came in at the end of the run. Mr. Wellington's tables were based upon conditions that have so completely changed, both with reference to railway operation and with respect to the character of equipment and the business of handling it, that it would not be applicable at all, although the fundamental principles are good, and Mr. Wellington was one of the brainiest and ablest railway men the country ever produced. His book has a front place in my library and I prize it highly; his tables on equipment however are completely out of date. That road is now a part of the Erie Railway. In making an examination of the equipment and facilities for its maintenance of

the Erie Railway in 1907, it was necessary for me to personally inspect every car, or some of each series of cars, on hand; among the cars carried on the Company's schedule of equipment were some of those old 25 ton box cars, originally the property of the Atlantic and Great Western. They were being used for boarding and camp cars. I recommended that they scrap all of them and write them off the books. They were good cars in their day, but there is no such equipment used now, and a distribution of contributing causes of repairs to equipment based upon cars or locomotives of that type, and upon conditions of that period is not a good rule to attempt to copy now. Another very important feature was that in those times all cars had what was called a link and pin coupler, making it necessary for the brakeman to go between the cars to where he made the coupling and they were handled very carefully compared to what they are now. Since the automatic coupler has come into use, and it is unnecessary for trainmen to go between the cars, the destructive effect of such has gone up enormously. It did not obtain in those days. If it had the cars would not have been there for me to have seen them in 1907.'

In view of Mr. Simson's testimony that the Wellington tables used by Mr. Berry furnished no data for making the division between line and terminal, and that he had no practical knowledge whatever on that subject; the further fact that conditions have so materially changed since Mr. Wellington prepared his tables that they are inapplicable to present day rolling stock of railways, and the testimony of Mr. Symons and that of the other witnesses who testified on that subject, Mr. Simson's calculations on that subject, as shown by his exhibits, are of no value whatever."

The logic of the court's finding is unanswerable. However, if the Simson percentages of maintenance of equipment to line and terminal be substituted in all computations in lieu of those applied in the plaintiff's exhibits, or resulting from the application of the Symons percentages, there is no perceptible difference in the result.

That is to say, notwithstanding the attempt of the defendants at pages 51 to 56 of their original brief and 13 to 16 of their reply brief, to magnify the importance of this apportionment, and its effect upon the final results, the application of any one of the three bases compared with any one of the others, results in no material difference in the percentage of return on the value of the property devoted to either the intrastate freight or the intrastate passenger business.

In order that the court may have for its consideration a comparison of the three bases, we have had made a computation showing under column 1 the result under the basis applied in the plaintiff's several exhibits, and as carried forward to exhibit No. 61; under column 2 the results on the basis of the substitution of the Symons percentages shown in Exhibit No. 51 for those used in Exhibit No. 61; under column 3 the results on the basis of the substitution of the Simson percentages for those originally used by the plaintiff.

The results shown under column 3, on the basis of the Simson percentages, substituted for those originally used by the plaintiff are found by simply substituting the Simson percentages in the various computations for those applied in the plaintiff's original exhibits and carried forward to Exhibit 61.

This computation is printed in detail, for the information of the court as appendix No. 9, and appears at pages [illegible] to [illegible] of this brief.

For the purpose of comparison the basis used in plaintiff's original exhibits will be referred to as the original basis; the results shown under the Symons' percentages will be referred to as the Symons basis; and the results shown by the substitution of the Simson percentages will be referred to as the Simson basis.

Considering the year ending June 30, 1913, which is typical of all of the other years, we find that on the basis of the original assignment there was a balance available for return on the intrastate freight business of $4,517.64, sufficient to yield a return of 0.31 per cent. upon the value of the property devoted to such intrastate freight business. (Exh. 61, p. 2.) On the Symons basis the amount available for return was $1,470.81, sufficient to yield a return of 0.10 per cent.; and on the Simson basis the amount available for return was $19,890.65, sufficient to yield a return of 1.38 per cent.

On the intrastate passenger business, there was a deficit upon the basis of the original percentages of $35,332.72 a deficit on the Symons basis of $31,554.79; and on the Simson basis a deficit of $37,748.38.

On the intrastate freight and passenger business combined the deficit on the original exhibits is $30,815.08; on the Symons basis, $30,083.98, and on the Simson basis a deficit of $17,857.73.

The result of applying the Simson percentages is to increase the net state freight operating income from $4,517.64 to $19,890.65, and the rate of return from 0.31 per cent. to 1.38 per cent., and to increase the intrastate passenger deficit from $35,332.72 to $37,748.38.

The defendants presented to the trial court a basis of apportionment between the line and terminal service which they insisted measured the same with reasonable accuracy, but used such apportionment only for the purpose of reflecting upon the basis presented by the plaintiff, and not to ascertain what the result would be upon their own basis. We have in these computations carried their basis to a final result.

Their contentions in this respect emphasize that their persistent efforts are to create uncertainty and to mag-

nify the importance of relatively unimportant matters. In other words, their efforts are and have been to confuse rather than assist in a solution of the problems involved.

It will be observed that the use of Mr. Simson's percentages in the apportionment of maintenance of equipment expenses between line and terminal results in confiscation as conclusively as does the basis used by the plaintiff, and that as to the passenger business it shows substantially greater confiscation than the basis employed in the original exhibits of plaintiff or by the Symons per cents.

APPORTIONMENT OF DIVISION YARD AND JUNCTION STATION EXPENSES BETWEEN LINE AND TERMINAL, AND STATE AND INTERSTATE TRAFFIC.

Witness Mayer, without any knowledge of the extent of the movement of interstate and intrastate traffic through division points, or from main to branch lines, criticized the method prescribed in the formula for the division of yard expenses betwen state and interstate, and of station expenses at junctions of branch lines with main lines between the line and terminal service. Mr. Mayer insists (571-4) there should be no difference in the treatment of shipments originating on branch lines and passing through a branch line and main line junction point, and a shipment originating on a foreign line and delivered to the St. Louis & San Francisco Railroad at a division point. He assumes that the handling in both instances is a terminal service, and should be apportioned between state and interstate on the terminal units. He loses sight of the principle upon which the formula is based, requiring that division be made with reference to the character of the service, as to whether

it is haulage or non-haulage expense, rather than the accident of similarity of service.

Mr. Mayer had no knowledge whatever of the number of units receiving service in the division yards, or whether the assignment of expenses to state and interstate on the terminal instead of the line units, would charge more or less to the state business. Nor did he know whether the apportionment of expenses of transfers from main to branch lines or from branch lines to main lines on the terminal units would operate to charge more or less to the state business. In the absence of any knowledge on the subject, and with his usual partiality and bias, he assumed that in each instance the basis prescribed by the formula overcharged the state business. This assumption was simply a biased opinion without anything in the record to sustain it. It was endeavored to be sustained as to division yards, as the state haul was relatively shorter, on the assumption that for an equal number of miles hauled the state ton would not receive the same amount of yard division handling.

The assumption that the method of apportionment prescribed by the formula operated to overcharge the state business is exploited in many places in the defendants' original and reply briefs, but particularly at page 51 of the original brief.

To ascertain whether or not Mr. Mayer's surmise had any foundation in fact, Mr. Hamilton applied literally the basis suggested by Mr. Mayer for the apportionment of these expenses to Fayetteville, a typical point, including all of the phases of the matter discussed by Mr. Mayer. It is a town of large size, having a division yard, main line local and through trains, with two branches leaving the main line, one the Ozark & Cherokee Central, running through to Muskogee and beyond, and the other the St. Paul branch, running out to Petti-

grew. Mr. Hamilton reconstructed the division of expenses at Fayetteville on Mr. Mayer's plan, for the test period of November and December, 1913, following his suggestions literally. He divided the freight line expenses between state and interstate on the basis of the gross tons of loaded cars picked up and set out at Fayetteville, instead of the net ton miles, as prescribed by the formula, and of which Mr. Mayer complained. He also distributed the transfer expenses from main to branch lines and from branch lines to main line upon the terminal instead of the line units. The comparative results he found to be as follows:

> "There was charged in our exhibits $592.66 to intrastate freight and $2,205 to interstate freight; whereas, following Mr. Mayer's suggested method I got a charge to intrastate freight of $1,058.51, and to interstate freight $1,739.35." (859-61)

It will be noted that the basis suggested by Mr. Mayer charges about 100 per cent. more to the intrastate business than the basis prescribed by the formula.

This mathematical demonstration of the absurdity of Mr. Mayer's assumptions has not in the least deterred counsel for the defendants from exploiting both directly and indirectly, in season and out of season, the contention in their brief that the state business is overcharged by the methods prescribed by the formula for apportioning division yard expenses between state and interstate traffic, and also by the method of apportionment of expenses at stations where transfers are made from main to branch lines and from branch to main lines.

The finding of the trial court upon this subject is as follows:

> "The criticism of Mr. Mayer of the division of yard and station expenses made by the formula of the company is based on the fact that what is called terminal expense is only a part of it. He says that

'under the formula used, all business passing through the junction from the branch line points is line, and all of the expense going to foreign roads or coming from it is terminal,' thus causing, as he claims, the intrastate traffic to bear not only the expense of its own terminals but those of the interstate.

After Mr. Mayer had testified on that point the accountants for the company made an investigation of the effect upon the results, if Mr. Mayer's plan had been followed. The investigation was made at Fayetteville, Ark., which is on the main line and also the terminus of two branches, and one of the largest stations of the company in Arkansas, with the result that under Mr. Mayer's formula intrastate traffic would have been charged with almost 100 per cent. more than it was under the Company's formula. This evidence is uncontradicted, and the figures charged on the work sheets, which were submitted to the accountants for the State, are conceded to be mathematically correct. The difference between the two contentions is that Mr. Mayer is of the opinion that every division point should be considered as a terminal in the sense of origin or delivery. On the other hand, the contention of the Company is and their calculations are made on that theory, that such terminal service was an incident to the transportation from origin to destination, and had nothing to do with the receipt, handling, storing or delivery of the freight, which constituted terminal expenses.

In the opinion of the court, the formula of the company on that item is correct, that it is a haulage, and not a terminal charge. The error of Mr. Mayer, in the court's opinion, is that he confounds the yard and station expenses with the terminal. In the one instance it is part of the haul, while the latter is that of receiving, storing and delivering." (919-20)

DEFENDANTS' CONTENTION THAT ASSIGNMENT OF OPERATING EXPENSES TO TERMINAL SERVICE UNDER THE FORMULA IS EXCESSIVE WHOLLY WITHOUT MERIT.

(*Defendants' Exhibits A, B, C, D and E.*)

The defendants being unable under the facts to make a direct attack on the apportionment of Arkansas operating expenses between the line and terminal service, evolved a collateral attack thereon, which is set forth on pages 60 to 68 of their original brief, under the heading "The formula is mathematically demonstrated to be wrong." Counsel for defendants there present a quotation from Plaintiff's Exhibit 4, which relates solely to the assignment of interstate revenues to the state, and has not the slightest application to the assignment of expenses to the State of Arkansas or the apportionment thereof between the line and terminal service or freight or passenger. The plaintiff's case is in no wise dependent upon the accuracy of this assumption, as segregation is made between interstate and intrastate revenues and expenses, but *the defendants' entire case rests upon the accuracy of this assumption because no effort is made by the defendants to segregate the cost of conducting the state and interstate business.*

The defendants' collateral attack consists of Exhibits A, B, C, D and E, and the evidence given in support of same. The purpose of these exhibits is to demonstrate that an excessive cost per ton handling and per passenger handling has been charged by the plaintiff against the state traffic in the State of Arkansas. The method employed is to apply the Arkansas line and terminal unit costs to the so-called system line and terminal units, and thereby to build up a purported constructive system operating expense charge. The conclusion the defendants draw from this is that the Arkansas operating expenses

as apportioned between line and terminal service in the plaintiff's exhibits are in error, and that the error results in an excessive terminal charge. In arriving at these results the defendants consider a terminal service as being rendered by the St. Louis & San Francisco Railroad to every ton of freight which crosses the Red River either north or southbound, when the evidence unqualifiedly shows that no such service was rendered. The defendants also assume that the apportionment results in assigning too much to terminal and too little to line, simply because it suits their convenience to make this assumption, when in fact there is no reason whatever for making such an assumption.

The cost per ton and per passenger per terminal so arrived at by the defendants in their Exhibit A is subsequently applied by them in the calculations set forth in their Exhibits B, C, D and E, which may be briefly explained as follows:

In these exhibits there has been applied by the defendants to the number of tons and passengers handled upon the entire St. Louis & San Francisco Railroad in seven state, covering a mileage of over 4,700 miles, the cost per ton and per passenger per terminal, and to the ton miles and passenger miles of the entire line, the cost per ton mile and per passenger mile for line service, of the railroad in Arkansas, as developed by the defendants in Exhibit A, based upon the plaintiff's showing of total line and terminal costs, respectively, within the State of Arkansas alone. The resultant figures set forth in Exhibits B, C, D and E, the product of applying Arkansas terminal costs and line costs to the tons, passengers, ton miles and passenger miles, handled on the whole railroad, is a hypothetical cost or total operating expense upon the entire railroad, which, as these four exhibits show, is in excess of the actual operating expenses in-

curred by the entire railroad in the periods covered by the exhibits. The theory upon which the defendants made these calculations, and produced these hypothetical results, was that the cost per ton and per passenger and per ton mile and per passenger mile for terminal and line service, respectively, was no greater in Arkansas than upon the railroad as a whole.

Mr. Simson testified that the figures developed in Exhibits A, B, C, D and E, indicate that the plaintiff's division of expenses between line and terminal is not correct, and that the formula is unsound; and, it is broadly asserted at page 60 in defendants' original brief, that the formula is mathematically demonstrated by these exhibits to be wrong. This is their principal and most confident ground of attack upon the formula. The contention is not only untrue—it is contrary to, and inconsistent with, all the evidence as to the manner in which the terminal expense is first made up and subsequently divided among the traffic units (intrastate and interstate passengers and tons), and the conditions of freight and passenger traffic in Arkansas as compared with the system, as to density and the length of haul.

Terminal expense embraces the cost of every character incurred in originating or terminating, receiving or delivering, traffic—freight or passenger—at the beginning and end of their haul or journey on the rails of a given carrier. It embraces, not only the proportion of wages of station, yard and train employees, properly chargeable to terminal service and the proper proportion of the cost of material and supplies and incidental expenses that go hand in hand with the activities of such employees, but also the maintenance of tracks, buildings, equipment and other facilities (or the proper proportion thereof) devoted thereto, as well as the re-

lated proportion of overhead, supervisory and general expenses. (865)

The terminal expense was not determined on the basis of tons and passengers handled; that is to say, these traffic units were not in any way used as factors in the assignment of expenses to terminal service. On the contrary, the assignment of expenses to terminal service was based upon the time of employees devoted to that character of service, with the use of the facilities of every kind proportioned directly to the activities of such employees, as indicated by the employment of their time, regardless of the number of tons or passengers handled. Wherever the entire time of an employee, or the entire use of a facility was devoted to terminal service, all of such employee's time and all of the maintenance of such facility was charged to terminal service. Wherever the time of an employee, or the use of a facility was devoted to both line and terminal service, a portion was assigned to terminal service which bore an exact relation to the time devoted to that service. It should be apparent to any one that, under the formula filed as Exhibit 1, and upon which the plaintiff's exhibits are entirely based, it would be impossible to assign any expenses as between line and terminal by using traffic units as factors for such division. This for the reason that line or haulage expense must necessarily be incurred in connection with the movement of traffic between terminals, which involves the element of distance, which element can only be expressed in the unit of *tons one mile or passengers one mile.* Tons and tons one mile cannot be used as common factors to divide an expense incurred on account of the freight traffic, between terminal and line, nor the passengers and passengers one mile be used as a common factor to divide passenger expenses between terminal and line. It is entirely

practicable, however, to determine the amount of time devoted by employees and the amount of time during which facilities are used, in handling freight in terminal service and passengers in terminal service, and freight in line service and passengers in line service, and it is upon this basis of the time use of the property that the terminal expenses in the plaintiff's exhibits were arrived at.

However, each item of expense which was definitely and explicitly line or terminal, was directly assigned to these respective services in accordance with the facts, and only the items of expense incurred jointly for line and terminal service were apportioned on the basis of time devoted to each. This is explained and illustrated in Exhibit No. 2, and the forms contained in Exhibits 2-A to 2-K. Upon these forms, station agents, foremen of switch crews, section foremen in charge of track maintenance, conductors, special clerks placed in yards and upon trains for the purpose of collecting and reporting information, made daily reports during the test period, showing how much time in all of these classes of service was deovted to terminal work and to what extent facilities were used in that service, such as tracks, buildings, equipment, etc. These reports covered also the terminal work done by road trains. These reports were collected and verified, and the total terminal expense on the railroad in the State of Arkansas was determined, by charging thereto the wages of employees and the cost of materials and supplies used by them, in proportion to the time devoted by the employees to terminal work or the use made of the facilities, buildings, etc., in that service. Now, when the terminal expense had been ascertained, in the manner described, for freight and passenger service separately, then the ton units and passenger units came into play and were used, when prop-

erly classified between intrastate and interstate, as factors to divide the freight terminal expense and the passenger terminal expense between intrastate and interstate freight and passenger traffic respectively.

The separate freight and passenger intrastate and interstate terminal costs, in Arkansas, appearing in the plaintiff's exhibits, were ascertained in careful and minute detail in the manner herein described. The defendants do not question the accuracy with which these terminal costs were arrived at upon the bases described. They do, however, claim that the bases and methods used by the plaintiff in determining these terminal costs were not proper ones. They do not attack them directly, but only indirectly attempt to show that these bases are erroneous. This is the sole purpose of their Exhibits A, B, C, D and E, wherein they attempt to show that, because when the Arkansas terminal costs are applied to the tons and passengers handled upon the entire railroad in six other states in addition to Arkansas, and the Arkansas line costs determined by the plaintiff are similarly applied to the ton miles and passenger miles of the entire railroad, the constructive result produced is more than the total actual operating expenses of the entire railroad. The contention of the plaintiff is that their allocation of expenses to terminal service and line service in Arkansas has been made upon sound and proper bases and is correct, and that the underlying reason for the result produced in the Defendants' Exhibits A, B, C, D and E is that Arkansas terminal costs and line costs per unit of traffic are higher than the average of such costs for the railroad as a whole, and that the reason for this is found in the lighter density of traffic per mile of road in Arkansas and the shorter haul of traffic in that state as compared with the average for the entire railroad. Illustrations are given by Mr. Ham-

ilton in his testimony as to the effect of lesser density and shorter hauls upon the unit cost of handling traffic. In many instances, the cost of maintaining and operating switch engines and maintaining terminal tracks and facilities and many other kind of expenses go on just the same, whether one or ten or fifty tons of freight, or one or ten or fifty passengers are handled. Take, as he says, a one-man station, where one man only is employed. The cost of his employment is the same whether he handles ten tons of freight or fifty tons, and regardless of how the number of passengers handled at such station may vary from day to day. The total cost at a given station or in a given yard may or may not, and often does not, vary in anything like direct proportion to the number of traffic units. The volume of traffic handled at such a station or yard and the cost per unit of traffic depend very largely indeed upon the density of traffic, or the number of tons or number of passengers handled, among which the cost *actually incurred* is to be apportioned.

In this connection, there was offered in evidence, Plaintiff's Exhibit No. 56, which is a statement of the cost per car handled in each of the yards on the entire railroad in the month of September, 1914. This statement, which is compiled by the railroad regularly each month in the conduct of its business, sets forth the actual cost of handling all cars in every yard upon the entire railroad. By dividing into such actual cost, the number of cars handled in each yard, there is ascertained the cost per car handled. In connection with this exhibit, we call attention to the following quotation from Mr. Hamilton's evidence (886), which illustrates the fallacy of the results obtained in Defendants' Exhibits B, C, D and E.

> "Exhibit 56 is our September, 1914, yard cost statement. It shows that on this entire railroad

during that month, we handled 593,329 cars, at an average cost of 23.2 cents per car.

In the yard at Fort Smith we handled 8,254 cars, at an average cost of 38.7 cents per car.

Let Fort Smith typify Arkansas: That average cost at Fort Smith is ascertained by dividing into the actual money spent at Fort Smith the number of cars handled in that yard. If you take that 38.7 cents and multiply the actual number of cars handled on the entire railroad by it, you find a constructive cost of $229,618, whereas, the actual cost as shown in this exhibit was $137,664. But that does not alter the fact that there was that actual cost incurred at Fort Smith. The parallel runs between that and our assignment of terminal cost in Arkansas. That cost was not built up on the number of cars handled at Fort Smith; it was built up on the number of switch engine hours that were worked there, as shown by the cost statement. That is what causes the expenses, not the number of cars we move. The cars were handled, it is true, as a result of working those switch engine hours, but to cut out 25 per cent., perhaps, of the number of cars handled might not have enabled you to reduce one single switch engine hour. That is your destiny of traffic proposition.

Now, let us take another illustration: It is Jonesboro, in Arkansas.

The cost per car at Jonesboro was 35.9 cents. If you apply that to the number of cars handled on the entire railroad you get a constructive cost of $213,005, as against an actual cost of $137,664.

The statement shows that in the month of September, 1914, at Jonesboro, we worked two crews, a day crew and a night crew. We paid those two crews for the services they performed. We had to keep them there to protect that yard, and we incurred an actual cost of $1,804. We handled 5,018 cars. Having to protect that yard with its light traffic density—let us assume the number of cars that came there for handling were diminished about one-half, or cut to 2,500—we could not take away one dollar of that actual expense in the Jonesboro yard, but the cost per car would have been twice as great.

There is the Arkansas situation in our terminal cost versus the entire line.

The costs are not built up in the Jonesboro yard on the number of cars handled any more than our terminal costs in these exhibits are built up on the number of tons handled. The cost is incurred, true, as a result of the tonnage, and the cars in this instance, being handled, but it is not apportioned between line and terminal on the basis of the number of cars or tons. I cannot make it any plainer."

For the year, 1913, the density of freight traffic for the entire railroad in seven States, was 633,906 tons one mile per mile of railroad; in the State of Arkansas, it was 545,927 tons one mile per mile of railroad, the Arkansas density being 20 per cent. less than that of the entire railroad. In the same year, the number of passengers carried one mile per mile of road upon the entire railroad was 97,000, and in Arkansas, 75,000, the Arkansas passenger traffic density being about 30 per cent. less than that of the entire railroad. The evidence shows that on some parts of the railroad, outside of the State of Arkansas, that freight traffic density runs from 2,000,000 to 3,000,000 tons one mile per mile of railroad per annum. The illustrations, made by Mr. Hamilton, show the effect of such a difference in traffic density upon the unit cost, terminal as well as line.

At pages 65 and 66 of defendants' original brief, attention is called to the fact, in discussing their Exhibits A, B, C, D and E, that the traffic density, both freight and passenger in Arkansas, was less than that of the entire line, both in 1913 and 1907. An effort is there made to show that it would be proper to apply Arkansas unit costs to the traffic of the entire railroad and from the results obtained contend that the plaintiff's line and terminal unit costs in Arkansas were wrong, by quoting witness Simson's testimony to the effect that a differ-

ence of 20 or 30 per cent. in the traffic density would have no appreciable effect upon the costs per unit of traffic. In this connection, counsel, at page 65 of defendants' brief, refers to Mr. Simson's statement that wherever the same number of trains are run, the cost of operation of the railroad would be practically the same, regardless of the contents of the trains, in numbers of tons or passengers, and counsel seems to have drawn the erroneous conclusion from this statement of Mr. Simson that the density of traffic has little or no effect upon the cost per unit of traffic. It is obvious that counsel has confused the volume of train service, or, as it might be called, the *density of train service*, with the *density of the traffic hauled upon the trains. By this argument, he admits the truth of the very thing for which the plaintiff contends*, which is that where total operating costs are, in a large measure, fixed, and traffic density or the number of traffic units handled is less upon one part of the railroad than another, a higher cost per unit of traffic actually obtains on that part of the railroad which has the lesser traffic density.

Unconsciously, or through a lack of a clear understanding of the proposition at hand, counsel for defendants has, in reality, by his own argument and his own witness referred to, proven the very thing which he set out to disprove, *i. e.*, that a lesser density of traffic necessarily means a higher cost per unit of traffic.

It would seem to be apparent from Mr. Simson's lack of understanding of this proposition that his evidence (897) as to the effect of relative traffic density in Arkansas upon the cost per unit of traffic in that state, is of no value, or, at best, necessarily rests upon sheer conjecture.

The freight traffic density was 20 per cent. less and

the passenger traffic density 30 per cent. less in Arkansas than on the entire railroad in 1913 (see defendants' original brief, page 65). If the total freight traffic of the entire railroad were reduced 20 per cent. and the total passenger traffic of the entire railroad reduced 30 per cent., the traffic density, freight and passenger, on basis of an average per mile for the entire railroad, would have been exactly similar to the traffic density in Arkansas. It can be mathematically demonstrated that if we reduce the traffic density of the entire railroad to the Arkansas level, and then apply to the traffic of the whole railroad, the Arkansas unit costs developed by the plaintiff in its exhibits, the resultant figures would come within a hair's breadth of the actual operating cost of the entire railroad. This proves conclusively that, considering the actual conditions of traffic density in Arkansas, the Arkansas unit costs developed by the plaintiff are sound and accurate. In order to make this proof, it is only necessary to take the defendants' own exhibits, designed to prove that the plaintiff's Arkansas costs were unsound, and place the entire railroad figures therein, reflecting the volume of traffic, on a parity with the traffic density figures of Arkansas in the same period.

For purposes of this demonstration, we have taken Defendants' Exhibit B and the calculations for the year 1913 set forth therein.

If the total traffic—tons, passengers, tons one mile and passengers one mile—of the entire railroad be reduced 20 per cent. and 30 per cent., freight and passenger, respectively, the traffic density per mile of railroad is automatically reduced 20 per cent. and 30 per cent., respectively, for freight and passenger traffic.

The calculations, based upon Defendants' Exhibit B, for the years 1913 reflected therein, are as follows:

The traffic of the entire line for that year is shown in that exhibit to have been as follows:

| | |
|---|---|
| Number of tons | 18,084,016 |
| Number of tons moved one mile | 3,005,714,904 |
| Number of passengers | 10,505,911 |
| Number of passengers carried one mile | 461,008,235 |

Reducing this entire line volume of traffic to the Arkansas level—that is to say, the freight units 20 per cent., and the passenger units 30 per cent.—the traffic units of the entire line for the year 1913 would have been:

| | |
|---|---|
| Number of tons | 14,467,212 |
| Number of tons moved one mile | 2,404,571,971 |
| Number of passengers | 7,354,137 |
| Number of passengers carried one mile | 323,125,764 |

Applying to this volume of traffic, the Plaintiff's Arkansas unit costs, set forth in Defendants' Exhibit B, we have the following calculations:

| | | |
|---|---|---|
| 14,467,212 tons | ×72.972 cents= | $10,557,013.94 |
| 2,404,571,971 ton miles | × .465 cents= | 11,181,259.67 |
| 7,354,137 passengers | ×17.354 cents= | 1,276,236.93 |
| 323,125,764 passenger miles | × 1.242 cents= | 4,013,221.99 |
| | | $27,027,732.53 |
| Add defendants' mail and express costs, as shown in Exhibit B | | 1,820,778.21 |
| Total | | $28,848,510.74 |

If traffic density of the entire line had been exactly on a par with that of Arkansas, Defendants' Exhibit B for the year 1913, would have shown that the cost of operation of the entire railroad on basis of the unit costs developed by the plaintiff in Arkansas would have been $28,848,510.74, arrived at as set forth in the table immediately preceding.

The Defendants' Exhibit B shows that the actual expenses of the entire line for the year 1913 were $28,185,-421.16—the difference between which figure and the constructive figure produced on basis of the Arkansas unit costs with the entire line traffic density reduced to the Arkansas level, it will be noted, is approximately 2 per cent.

It is apparent from this that the Defendants' Exhibits B, C, D, and E (and they are all of a similar character to Exhibit B, some including lines in Texas and some excluding such lines), when based upon an entire line traffic density properly comparable with that of Arkansas, absolutely confirm and substantiate the very thing they set out to disprove—that is, the accuracy of the plaintiff's cost per unit of traffic for line and terminal service, freight and passenger respectively, in the State of Arkansas in the years 1913.

In Plaintiff's Exhibit 41, it is shown that the proportion which the total traffic in Arkansas was of the traffic of the entire line, was practically level, varying less than one per cent. in the years 1910, 1911, 1912 and 1913. Inasmuch as the miles of railroad operated had not changed throughout those years, either in Arkansas, or of the railroad as a whole, an unchanged relation in the total volume of traffic means necessarily an unchanged relation of traffic density per mile of railroad; so that, while the total volume of all traffic, both in Arkansas and upon the railroad as a whole, may have fluctuated, the relation of density of traffic in that state to that of the entire railroad had not changed throughout all the years mentioned. It will, therefore, suffice to say that the demonstration, made in this connection with the 1913 figures is applicable to all of the other figures set forth in Defendants' Exhibits B, C, D and E.

Mr. Hamilton was asked by counsel if the terminal cost had any relation to the length of haul. He explained the relation and its effect upon terminal cost very clearly at pages 866 and 867 of the record by comparing the haul of 160 miles, the average length of haul on the entire line, with a haul of seventy miles, the average length in Arkansas. Only two terminal services are required in moving a ton of freight 160 miles, or the average haul

for the entire line, while four terminal services would be required in moving one ton 140 miles in Arkansas where the average haul is but seventy miles.

This is illustrated by the witness in answer to questions put to him by counsel. In that connection he said:

> "The fact that you handled a ton four times instead of twice may or may not have caused more terminal expense, but when you have set up the actual terminal expense or accumulated it on the basis of the time study or the direct allocation, then each ton that moved into or out of the terminal will bear its burden. There will be a greater expense, and properly so, accruing against a given number of tons of short-haul traffic as compared to the same number of tons of long-haul traffic. The Arkansas business is a short-haul business."

We specially call attention of the court to the evidence of Mr. Hamilton at pages 825-834, 865-869, 880, 885-886, in which he shows conclusively and beyond question that unit cost is affected by density of traffic and by the length of the haul, and explains in considerable detail the causes that create the differences. The defendants made no effort to contradict Mr. Hamilton's illustrations and statements. Defendants' contentions rest wholly upon a statement contained in Exhibit 4, where, in describing the use of constructive mileage, it was assumed that the average terminal costs in the state per ton and per pasenger handled was closely reflective of similar costs on the railroad in other states, and to a partial extract from the testimony of Mr. Hamilton at page 260 of the record in whch he stated that he made some examination and found that the cost per ton of handling freight in the two big stations of the railroad in the City of St. Louis had run between 36 and 39 cents per ton, and found that pretty close to the Arkansas average. He then stated that the exhibits in this case embrace all freight, includ-

ing carload and less than carload, and that it cost much more to handle less than carload than carload freight. That fact explains the expenses of handling freight at the two big stations at St. Louis, where all the freight handled is less than carload.

Mr. Hamilton was the first witness introduced in this case and these statements were made before the point developed by Mr. Simson's exhibit was brought out. He did not have in mind in this testimony, nor in the preparation of the exhibit, the question of terminal cost per unit, or comparison of the unit cost between traffic in the state and on the entire line; but we do not regard that as material. The facts developed in the record as to the class of expense included in terminal cost, the manner in which it is ascertained, wholly without any reference to the tons or passengers handled, which establishes beyond the shadow of a doubt that a very considerable part of that cost is unaffected by variations in the number of tons or passengers handled in terminals and at stations, rendered it absolutely impossible that the cost per unit should be uniform, unless by accident, even between stations in the same state, where the number of tons and passengers handled varied; and much less can this be so as between traffic in a state where there is a light density of traffic and a short haul, and an entire system of railroad operating in six other states where the density of traffic is from 20 to 30 per cent. higher, and the average length of haul more than double that in Arkansas. This proposition is self-evident and beyond question, and the fact that the exhibit in this case assumed, and that Mr. Hamilton assumed, but not in either case in connection with the question we are now considering or with that question in mind, that the Arkansas terminal cost would be fairly reflective of that of the system, can not change the effect of these facts any

more than his statement that twice two produced five could be taken to establish that fact; and this disposes of this whole attack upon the Formula, made with such confidence and with so little appreciation of the actual conditions of traffic, by the defendants' witness and the learned counsel.

The controlling importance of the density of traffic as affecting the cost per unit of transportation is tersely stated by the Interstate Commerce Commission in *In re* Investigation of Advance in Rates by the Carriers in Official Classification Territory, 20 I. C. C., 243, 275, in the following language:

> "In prosecuting this inquiry certain elementary principles may be noted.
>
> Viewing the freight rates of this country as a whole, it will be found that rates are usually the lowest in those sections where the traffic is most dense. It has been frequently said by railroad witnesses that this ought to be so because the freight rate should decrease as the density of traffic increases. Stated in the most general terms, the reasons are these:
>
> The cost of constructing a railroad which will handle economically traffic producing $5,000 per mile of gross revenue is substantially the same as though $10,000 per mile in traffic were handled. The grading, the ties, the embankments, the stations, would all be practically identical.
>
> The cost of maintaining this road is not much greater under the larger volume of tonnage than with the smaller. About the same number of men are required and about the same amount of material.
>
> Certain elements of cost in the operation of the road are the same whether the traffic be at the higher or the lower figure, as, for instance, the stationmen, the telegraph force, the signalmen, etc. * * *
>
> Under the larger volume of business the car loading and the train loading each lends itself more readily to economical operation.
>
> It has been noted that in the 14 years from 1896

to 1909, inclusive, the tonnage of our railroads increased more than 100 per cent. This, acting in the manner above indicated, tended largely to increase the net revenues of the railways. Not only did these causes tend to produce a lower cost of operation per unit, but the number of units was more than doubled. This makes very strongly for a reduction in the freight rate."

As showing the utter worthlessness of, and the incongruities developed in the defendants' exportation of the Arkansas unit costs to the entire line units as made in these exhibits, attention is directed to the following testimony of Mr. Hamilton on pages 833-4 of the record:

"Now, as a further illustration, or criticism, if you will, of Exhibits B, C, D and E, I would like to direct attention to the ratio of terminal cost to the total cost of the entire line that he (Simson) reproduced under his application.

In the first period his application shows that on the entire line the terminal per cent. to total freight expense is 48.27 while in Arkansas it was 38.71.

That is, his built-up figure is 48.27.

Also the terminal burden per ton mile on the long haul of the entire freight traffic, more than twice what the haul was in Arkansas, was 4.34 mills. While in Arkansas the burden on short-haul traffic is only 2.94 mills.

Those are figures derived from the constructive expense that Mr. Simson has built up by carrying Arkansas unit cost out to the entire road.

It seems to me it would be obvious on its face that were you to have a haul more than twice as long, you could not have the burden of terminal cost so materially greater, as is shown by the figures I have just given."

Following up this comparison of the freight terminal expenses made by Mr. Hamilton, a similar comparison in respect to the passenger expenses shows that while the terminal percentage in Arkansas was 20.58 per cent. of the total passenger expense the application made by Mr. Simson to the entire line in his Exhibit "B" results in

developing a terminal percentage of 24.13 per cent. of the total entire line passenger expenses. In Arkansas the terminal burden per passenger mile was 3.22 mills for an average haul of 26.39 miles, while on the entire line this application develops a terminal burden of 3.95 mills per passenger mile on an average haul of 43.94 miles.

The incongruous results thus brought out and which charge more terminal expenses per ton or per passenger mile against the long haul traffic than against the short haul traffic is diametrically opposite to the true condition, as it mathematically follows that a terminal cost when spread out over a 43.94 mile haul would be only 60 per cent. as much per passenger mile as when spread out over a 26.39 mile haul.

The comparative density of traffic in Arkansas and on the entire line per mile of road for the fiscal year 1913 is as follows (833):

| | Arkansas | Entire Line | Entire line in excess of Arkansas |
|---|---|---|---|
| Tons one mile | 545,927 | 633,906 | 16.11% |
| Passengers one mile | 75,333 | 97,353 | 29.10% |

The entire line figures shown above include Arkansas which on account of the latter being less than the entire line average has the effect of somewhat reducing the showing for the entire line, and, therefore, does not reflect the real density on the entire line outside of Arkansas. In order to show the density of traffic on the entire line outside of Arkansas the traffic units and mileage of Arkansas have been deducted in the following table which compares the traffic density in Arkansas with the traffic density of the entire line outside of Arkansas (833; Exhibits "C" 21 and 37):

| | Arkansas | Entire Line | Entire line in excess of Arkansas |
|---|---|---|---|
| Tons one mile | 545,927 | 646,591 | 18.4% |
| Passengers one mile | 75,333 | 100,528 | 33.4% |

As proving conclusively that the application made by the defendants in their Exhibits B, C, D and E has no relation whatever to the accuracy of the division of expenses in Arkansas between line and terminal service, and also proving conclusively that the density of traffic is a controlling factor in the unit costs per ton mile and per passenger mile a computation has been made for the purpose of showing the actual unit costs on the entire line under a proper application of the cost relations found in the State of Arkansas in the test months of November and December, 1913, under the formula. In this computation the entire line expenses for the same two months of 1913 as shown in Exhibit "C" were first divided between the freight and passenger service on the basis of the respective freight ton mile and passenger mile unit cost relations found in Arkansas in the same two months. This was accomplished by multiplying the corresponding entire line units by the respective freight and passenger ton and passenger mile unit costs found in Arkansas and using the results so obtained as factors for dividing the actual entire line operating expenses between the freight and passenger service, thus in effect securing a division between freight and passenger under the units and bases applied in Arkansas in the test period. The next step was to divide the entire line freight expense between line and terminal in the actual percentage relations that the freight expenses were divided between line and terminal in Arkansas, also dividing the entire line passenger expenses between line and terminal and mail and express in the actual percentage relations in which the passenger expenses in Arkansas were divided between line and terminal and mail and express. The next step was to divide the freight line and terminal expenses by the tons one mile and tons handled respectively and the passenger line and terminal expenses by the

passengers one mile and passengers handled respectively, thus bringing out a separate line and terminal unit cost in both the freight and passenger service on the entire line which are as follows:

| | |
|---|---|
| Line freight | .446c per ton mile |
| Terminal freight | 21.347c per ton handled |
| Line passenger | 1.170c per passenger mile |
| Terminal passenger | 5.948c per passenger handled |

These entire line unit costs may be compared with the unit costs found in the State of Arkansas and shown in Exhibit "A" under the identical freight and passenger and line and terminal expense relations, which are as follows:

| | |
|---|---|
| Line freight | .465c per ton mile |
| Terminal freight | 31.139c per ton handled |
| Line passenger | 1.242c per passenger mile |
| Terminal passenger | 5.443c per passenger handled |

The importance of density of traffic in this connection is thoroughly demonstrated by what the court had to say upon the effect of density at page 928 of the record (222 Fed., 558-9), although dealing with another subject.

It will be noted that in every instance the unit costs on the entire line are lower than the corresponding unit cost in the State of Arkansas with the exception of terminal passenger which is only ½ cent higher on the entire line than in Arkansas. These comparisons show conclusively that the density of traffic is an influencing factor in the cost of transportation per unit of traffic. Also that a similar line and terminal division on the entire line, as was made in Arkansas, necessarily produces different unit costs than those found in Arkansas and further that the Arkansas unit costs cannot be applied in measuring entire line expenses.

Any computation based on the relative unit costs which disregards density of traffic must of necessity be misleading and produce incorrect results. Any computation based upon the assumption that the relations are the same in Arkansas as on the system, and which operates

when applied to system units to charge 48.27 per cent. of the freight operating expenses to terminal on the system, as against only 38.71 per cent. in Arkansas is on its face fallacious and misleading. The conversion of 38 per cent. of the total freight operating expenses as terminal in Arkansas to 48 per cent. terminal on the system demonstrates the falsity of the assumption and the unfairness of the application; and a similar conversion of the passenger terminal percentage of 20.58 per cent. in Arkansas to 24.13 per cent. of the total operating expenses again demonstrates the error of the assumption and the falsity of the premises of the defendants' exhibits.

It is suggested in connection with a consideration of these exhibits that the defendants had ample opportunity to investigate, and did investigate the Arkansas line and terminal expenses, and could find no fault therewith. They, therefore, evolved this so-called collateral attack, and attempted to establish thereby that the plaintiff's Arkansas line or terminal unit costs were excessive. We submit that their evidence not only fails to sustain their contention, but, considered in connection with the facts, discloses a delusive, misleading and meaningless result.

DEFENDANTS' PROCESS OF FINDING AND CARRYING BACK AVERAGE REVENUES AND OPERATING EXPENSES INTO THE FOUR MONTHS OF 1907 MANIFESTLY MEANINGLESS AND MISLEADING.

*Defendants' Exhibits H-1 to P-1 and Z-1.*

In order to convert actual into hypothetical results, for the purpose of exploitation, and to indirectly import into the four months of 1907 revenues not earned in those months, and not possible to be earned under existing rates, the defendants conducted what they call an

equating process, which in its last analysis operates to transfer to the last four months of the year 1907, when passenger fares, state and interstate, were on a 2c basis, and the average earnings per passenger per mile were 1.94c, substantially the average passenger revenues for the years 1910, 1911, 1912 and 1913, when passenger fares were on a 2½c and 3c basis, state and interstate, and the average earnings per passenger per mile, were 2.55c, as against 1.94c in the four months' period, being 32 per cent. more than what they were in 1907.

The same is true, but in a less marked degree, in reference to freight rates, the freight earnings per ton per mile, in the four months ending December 31, 1907, averaged .839c and during the four years .922c, the average earning per ton per mile for the four years being about 10 per cent. in excess of that for the four months.

The process applied is circuitous, as will be hereafter shown in detail, but the result, so far as revenues are concerned is practically identical with lifting the average revenues for the years 1910, 1911, 1912 and 1913 out of these periods and transporting the same bodily into the year 1907, and the substituting of such average earnings under 2½c and 3c passenger fares and higher freight rates for those under 2c passenger fares and lower freight rates. The equation is purely a revenue equation, and wholly disregards the volume of traffic in the two periods, and the much greater earnings per unit of traffic in the subsequent years.

The defendants' equating process also involves the so-called equating of expenses of the four months of 1907 to the basis of the other years, but here again no effort is made to equate on the volume of traffic moving in the two periods. There is no equation of either property values, taxes, rentals or hire of equipment. Larger property values were employed in the years 1910 to 1913, in-

clusive, and while the earnings resulting from the use of the increased property values were carried back to 1907, the increased property values were not so carried back. The same is true with reference to taxes, which were necessarily enhanced in subsequent years by the enhancement of property values. They were also enhanced by the increased tax rates, but taxes were not equalized. Nor was hire of equipment.

We will now consider in detail the methods employed by the defendants in their so-called equating process, by which they created a hypothetical earning and a hypothetical return in the four months of 1907 far greater than the actual earnings and the actual return, in order to induce the trial court to hold that the temporary injunction was improperly granted, and notwithstanding the case might be decided against them on the merits, that they might be permitted to collect refunds for some part of the time during which the injunction was in force.

Their process is as follows:

The defendants have presented exhibits numbered from H-1 to P-1, inclusive, and Z-1, for the purpose of developing for the four months, September, October, November and December, 1907, a so-called normal amount of revenues and expenses and which they desire to substitute for the actual revenues and expenses found for that period.

The processes employed were, (1) to establish on the entire line the percentage of revenues and expenses accruing in the four months, September to December, inclusive, with reference to the revenues and expenses accruing during the entire year covering a period of five years, namely 1908, and 1910 to 1913, inclusive. The results of these calculations are shown in Exhibit H-1.

(2) To establish the Arkansas percentage relation of revenues and expenses to the total revenues and expenses of the entire line in the period consisting of the four months of 1907 and the four fiscal years, 1910 to 1913, inclusive, and thus establishing the so-called normal 1907 Arkansas percentage proportion of the aggregate for the entire line for the entire period covered. These percentages are shown on Exhibit I-1.

Exhibit J-1 seeks to establish an average revenue and expense for the four months on the entire line under the percentages found in Exhibit H-1 and then determines the Arkansas proportion of such under the percentages found in Exhibit I-1, thus bringing out the purported normal Arkansas revenues and expenses applicable to the four months ending December 31, 1907, which revenues they substituted for the actual intrastate revenues found in Arkansas and the proportion of interstate revenues assigned to Arkansas by the company for that period, and which expenses they substituted for the expenses that were found by the company as applicable to Arkansas during that period. Thus the Arkansas revenues which the defendants found under their averaging process, amounted to $1,259,215.13, were substituted for the $1,245,986.29 actual revenues found by the company in that period (Exhibit 27-a), and the expenses found by the defendants under their averaging process amounting to $971,544.07, were substituted for the actual expenses found by the company amounting to $1,068,-783.68 (Exhibit 27-a), which resulted in developing a net revenue under their plan of $287,671.06 as against the actual net revenue under the company assignment of $177,202.61.

The process applied by the defendants in determining the substitute revenues and expenses and the results secured thereunder are meaningless and misleading for

the reason that the average conditions in respect to revenues and expenses on the entire line in any one year are not reflective of the conditions in Arkansas during that year, much less are the conditions in respect to revenues and expenses on the entire line, representing an average of five years, reflective of conditions in Arkansas during the four months ending December 31, 1907, which is the underlying principle of the defendants' theory. Furthermore, in determining the average revenues for four months on the entire line, and, in turn, determining the percentage of entire line revenues assignable to Arkansas under this averaging process there was used as basic data the revenues accruing on the entire line, and also in Arkansas, under various different kinds of rates and which were in no respect identical or representative of the rates and conditions prevailing in Arkansas during the four months ending December 31, 1907, in which there was a 2-cent state and interstate passenger rate, and a state railway commission schedule of freight rates applied in Arkansas, while during the same four months the entire line revenues accrued under many different state and interstate rates in seven states including a 3-cent passenger rate in the States of Tennessee and Mississippi, and a 2½-cent passenger rate in Alabama.

During the other four years for which the revenues were included in this attempt to find the so-called normal revenues in Arkansas for the four months in 1907, there was charged in the State of Arkansas for both state and interstate a passenger rate of 2½ cents in the year 1910, 3 cents in the years 1911, 1912 and 1913, a 3-cent state and interstate rate in Oklahoma, Tennessee and Mississippi, and a 2½-cent state rate in Missouri and Alabama. The freight rates charged in Arkansas in 1910, 1911, 1912 and 1913 were the court tariff rates,

which were higher than the Commission rates charged in 1907. The rates charged on entire line in those years were a combination of various rates either voluntary, those fixed by state commissions of several states and by the Interstate Commerce Commission. Thus, in attempting to find the so-called normal revenue accruing in Arkansas in the four months ending December 31, 1907, under a passenger fare of 2 cents per mile and under state freight rates prescribed by the Arkansas Railroad Commission there was used an Arkansas revenue percentage proportion of all of the revenues accruing on the entire line under the various rates mentioned, and which obviously are not representative of the revenues collected under the 2-cent fare in Arkansas and the freight rates prescribed by the Arkansas Railroad Commission in their Standard Distance Tariff No. 3 which are the subject of this litigation.

The unfairness of this process of determining the so-called normal revenues in the State of Arkansas for the four months ending December 31, 1907, is clearly demonstrated by the fact that the average earnings per passenger mile in the State of Arkansas was 1.94 cents during the four months ending December 31, 1907, while in the four years, 1910 to 1913, inclusive, the average earnings per passenger mile was 2.55 cents. The average freight earnings per ton one mile in the State of Arkansas during the four months ending December 31, 1907, was .839 cents, while during the four years, 1910 to 1913, inclusive, the average earnings per ton mile in Arkansas was .922 cents. So far as the passenger side is concerned the averaging process operated to increase the factor by which the assignment was made to Arkansas by about 31.44 per cent. over what it would have been had the same rates prevailed in 1910 to 1913, inclusive, as did prevail in the last four months of the year 1907, and so

far as the freight is concerned the averaging process operated to increase the factor used in the assignment of revenues to Arkansas by about 9.9 per cent. over what it would have been had the same rates prevailed in 1910 to 1913, inclusive, as in the last four months of the year 1907.

In Exhibit J-1 there is also shown an income account based on the so-called normal revenues and expenses that the defendants found for the four months ending December 31, 1907, under their averaging process. However, when it came to determining the amount of taxes, rental income, hire of equipment and the value of the property for that period for use in this income account they failed to average these items for the four years and four months' period in which the revenues and expenses were averaged and instead applied the taxes, rentals, and property values that were found for that particular period by the company and used in its statistics, and which were much less than a four months' average based on four years and four months. The inconsistency of this application is apparent when attention is called to the fact that the hypothetical revenues imported into the 1907 period and which were a percentage of the four years and four months' revenues, were earned in a period in which the taxes were largely in excess of the 1907 taxes, and in which there were more property values employed to earn these revenues than was found for 1907, and any fair demonstration of the defendants' theory would necessarily involve an averaging of taxes, rentals, hire of equipment and property values of the entire four years and four months' period and applying this average to 1907 the same as was done with the revenues and expenses. Had this been done the rate of return on values under defendants' theory as brought

to a conclusion in their Exhibit J-1 would have been 4.77 per cent (Exhibit 58), instead of 6.62 per cent.

In Exhibit K-1 is shown another demonstration of their theory for determining the normal revenues and expenses for the four months of 1907, on the basis of the average of four years and four months, by applying what purports to be a five-year mathematical average under which 10.22 per cent. of an average four months' revenue during the period of five years on the entire line is assigned to the State of Arkansas, thus importing into Arkansas, and as representing the revenue for the four months ending December 31, 1907, revenues amounting to $1,462,405.76, which is $216,419.47 in excess of the actual amount that was found and assigned to the state in that period by the company. The amount of expenses developed for the 1907 period under this same process amounted to $1,100,857.21, which is $32,073.53 in excess of the actual expenses assigned by the company. However, as a result of the importation of the $216,419.47 additional revenue, the net revenues found for that period is $184,345.94 in excess of the actual net revenues of the period. In this exhibit the defendants have again applied the actual taxes, rentals and the property values found for the 1907 period in the company's statistics instead of the average for the five-year period which a fair demonstration would suggest. As a result of the importation of the additional revenue and the failure to consider the average of the items specified, there is shown a return on the property value of 8.03 per cent. Had they averaged the Arkansas taxes, rentals, hire of equipment and property values for the full period and applied a four months' proportion of such to the four months of 1907 the rate of return under their theory would have been 5.93 per cent. (Exhibit 58.)

Exhibits L-1 and M-1 in combination show a similar

application of defendants' averaging theory as is shown in Exhibit J-1 previously discussed and differ only to the extent that the basic figures on which the percentages were found include six years of the entire line results instead of five years and which develops in Exhibit M-1 an alleged rate of return of 6.89 per cent. Here again they fail to apply the average amount of taxes, rentals, hire of equipment and property values. Had this been done they would have found a rate of return of 5.00 per cent. (Exhibit 58.)

In Exhibits N-1 and O-1 the defendants have made a similar demonstration of their theory as shown in Exhibits L-1 and M-1 with the exception that the Arkansas percentages were based on the assignment of revenues and expenses under the company's old formula instead of under the new rate case formula, and there is shown on Exhibit O-1 an alleged rate of return of 7.51 per cent. Here again they have failed to average the taxes, rentals, hire of equipment and property values. Had this been done the rate of return shown under their theory would have been 5.51 per cent. (Exhibit 58.)

Exhibit P-1 shows a similar demonstration to that shown in Exhibit K-1 except that the Arkansas percentages are based on the results developed under the application of the company's old formula, and as a result of the importation into Arkansas for the four months of 1907 on this basis, revenues amounting to $232,159.65 in excess of the amount actually accruing in that period, and approximately the same expenses that were found by the company for that period they bring out an alleged return of 9.3 per cent. However, in doing this they again fail to assign to that period an average amount of taxes, rentals, hire of equipment and property values used in earning the revenues upon which the revenue percentages were based and had they applied the same

averaging system in determining the taxes, rentals and property values as they did in determining the amount of revenues and expenses that were imported into the 1907 period the rate of return under their theory would have been 6.75 per cent. (Exhibit 58.)

Exhibit Z-1 purports to be a comparison between the imported results for 1907 as reflected in Defendants' Exhibit O-1 previously discussed and the company's revenues, expenses, taxes, rentals and values for the four months ending December 31, 1907, as adjusted by the defendants according to their ideas in respect to the freight revenue, maintenance of equipment and transportation expenses as per their Exhibit Y, and there is brought out the difference in revenues and expenses between those shown on Exhibit O-1 which they term the normal average, and their adjusted company results shown on Exhibit Y, which they term the actual, and they find that the percentage of return found by them in their Exhibit Y is .98 per cent. below the so-called normal average return found under Exhibit O-1. In other words, they have, in Exhibit Y, set up one result under their adjustment of the company figures, and in Exhibit O-1 set up another result under the averaging system, and find that the return under the one is .98 per cent. below the return on the other.

Attention may be directed to the fact that in defendants' demonstration of their theory culminating in the results shown in Exhibits J-1, K-1, M-1, O-1 and P-1, "Y" and Z-1, there has been no separation made of the revenues, expenses, income or property values as between the freight and passenger service nor as between the intrastate and interstate business in the state, and the rate of return as found under the application of their theories is the rate of return on the entire business within the state and which includes the state and inter-

state freight and passenger business and mail and express.

Regarding these exhibits, H-1 to P-1 and Z-1, see Hamilton's testimony, 840 to 850.

The H-1 to P-1 and Z-1 exhibits were preceded by a series of similarly lettered exhibits without the suffix "1." As was pointed out by Mr. Hamilton, these exhibits included the earnings of 4,700 miles of railroad, and the expenses of 5,280 miles in some instances and 5,428 miles in others. This error was admitted by Mr. Simson (750), and the H-1 to P-1 and Z-1 exhibits prepared as substitutes for the H to P and Z exhibits.

The magnitude of the errors made in these last-mentioned exhibits is disclosed by Mr. Hamilton (842-4), and he also shows that *so elastic was the process of averaging used by the state in arriving at the results that errors of from nine million to twelve million dollars in the basic figures of earnings and expenses, upon which their averages rest, made only infinitesimal differences in the final results* obtained as between the exhibits containing the erroneous basic figures and those in which the errors were corrected.

The court in disposing of the contention made by the defendants, based upon these exhibits, used the following language (929-30):

> "The calculations made by Mr. Simson in his Exhibits K-1 and Z-1 are based only on the last four months of five years on the entire system, while the valuation is that based on the year 1907, the lowest of any year and far below the average. By this method he reduces the percentage of traffic for these periods from 36.98 per cent., which it actually was, to 36.34 per cent., which it was not in fact. Exhibit O of Mr. Simson is based on a formula spoken of as Mr. Douglass', discarded in this case because found to be erroneous by Mr. Simson and admitted

to be so by the company's accountants. His Exhibit J-1 shows the net earnings based on the four last months of 1907 to be 6.62 per cent. Exhibit M-1, which is based solely on the last four months for the years ended June 30, 1908, 1910, 1911, 1912 and 1913, shows an average profit of 6.89 per cent., or an average of the two exhibits of 6.75 per cent. In these exhibits, as in all others of Mr. Simson's, no allowance is made, as stated before, for difference in cost, taxes, density of traffic, shorter hauls shown to exist in Arkansas when compared with the entire system, nor any difference in cost between state and interstate, but the road in Arkansas is treated as part of the entire system, and the assumption acted on that the cost is the same on every part of the system, and also for intra and interstate business, an assumption wholly unwarranted and opposed to all the evidence in the case.

Nor does he make any allowance for decreased earnings, which would have resulted from the state's rates, sought to be enjoined by this action."

### Traffic Expenses.

Traffic expenses, freight and passenger separately, were not included in their ultimate division between intrastate and interstate either as terminal expenses or line expenses, but were divided directly between intrastate and interstate on the basis of the volume of traffic; that is, upon the passengers one mile and tons one mile in each class, respectively, assigning in the months of November and December, 1913, 40.55 per cent. of the passenger expenses against state passenger traffic, and 3.89 per cent. of the freight traffic expenses against the state traffic. Exhibits Nos. 15 and 16.

During the test period, November and December, 1913, the average haul of the interstate passenger in Arkansas was a little more than double that of a state passenger, and there was, therefore, charged against each

interstate passenger double the amount of traffic expenses that was charged against each state passenger. On the freight side, the average length of interstate haul was three times that of the state haul, and each interstate ton was, therefore, charged with three times as much traffic expense as was the state ton. (Exhibit No. 39.)

Notwithstanding these facts, it is argued in the reply brief of defendants, page 28, that the apportionment of traffic expense between state and interstate on the passengers one mile and tons one mile operates to overcharge the state business and this is on the assumption, unsupported by the evidence, that the intrastate passenger travels without solicitation and the interstate passenger only by solicitation, and that the shipper of intrastate freight is a voluntary shipper and that the shipper of interstate freight needs to be coaxed in order to get him to make a shipment. It is also on the further assumption that all interstate business is competitive and that no state business is competitive, which not only is not supported by the evidence but is contradicted by both Mr. Nay (370) and Mr. Hamilton. (189-90 and 369) Counsel for defendants is put in the position of arguing that it is unfair to the state to charge against it only one-half as much traffic expense per passenger and one-third as much traffic expense per ton for freight as is charged for each interstate passenger and each interstate ton.

The basis here employed charges about one-half as much on the freight side to the state traffic, and substantially less on the passenger side, than was charged on the basis employed and approved by the state in the Iron Mountain case.

RELATIVE COST OF STATE AND INTERSTATE TRAFFIC AND THE FACTORS CAUSING THE GREATER COST OF STATE OVER INTERSTATE.

From the standpoint of tons one mile, in the case of freight traffic, and passengers one mile, in the case of passenger traffic, there is naturally an increased cost of state business over interstate business for the reason that the state business necessarily incurs more terminal service than the interstate business. This partially because the state ton or the state passenger is given two terminal services in the state, in their movement, namely, one at point of origin and another at point of destination, while the interstate ton or passenger at the most receives only one terminal service within the state, and to the extent that the interstate represents transstate traffic it receives no terminal service at all within the state. Another cause for the excess cost of state over interstate is the difference in the length of haul of state and interstate traffic within the state; the short haul state traffic encounters terminal service more frequently than the long haul interstate traffic for an equal number of movement units.

In the State of Arkansas during the test period, consisting of the months of November and December, 1913, the average state ton of freight was hauled 14.2 miles per terminal handling while the average ton of interstate freight was hauled 143.2 miles in the state per terminal handling (Exhibits 6, PP-1 and 5), thus the state ton used the terminal service 10.1 times as much per mile of haul as the interstate ton, instead of two times as much which would be the relation if the length of haul was the same for both state and interstate. As the terminal freight proportion was 38.71 per cent. of the total freight expenses (Exhibits 14 and 15), and, as has

been shown, this expense is chargeable against the state traffic in the ratio of 10 times as much as to the interstate traffic per ton mile, it in itself, results in an excess cost of state freight over interstate freight per ton one mile of 284 per cent.

Another cause for the increased cost of the state ton one mile over the interstate ton one mile is the fact that, because of its short haul and character of service required, the state traffic is more largely carried on local trains than is the interstate freight which on account of its long haul is more largely carried on through trains. There is a considerable difference in the line or haulage cost per ton mile for freight carried on local trains than on through trains owing to the smaller quantity of traffic that is carried on the local trains which perform a station to station picking up and setting out or peddling service, and, therefore, cannot be loaded up to their maximum capacity; besides the nature of the service requires these local trains to be longer on the road involving additional wages of the trainmen and additional consumption of fuel, water and supplies. During the test period of November and December, 1913, 74 per cent. of the total Arkansas state freight traffic, as represented in tons one mile, was carried on the local trains while during the same period only 17.8 per cent. of the interstate traffic in Arkansas was carried on such trains. (Exhibit No. 6 P-1.) Thus 74 per cent. of the state traffic encountered the higher cost local train service, while only 17.8 per cent. of the interstate traffic encountered this higher cost local train service. The line or haulage cost in the local trains was .748 cents per ton mile, while the line or haulage cost in the through trains was only .385 cents per ton mile, or only about 56 per cent. as much. (Exhibit 14.) And by reason of the fact that 74 per cent. of the state freight

and only 17.8 per cent. of the interstate freight was carried on the higher cost local trains there is an excess haulage cost of state traffic over interstate traffic of 45.4 per cent., or an excess cost on the total expense of 35.58 per cent. The total excess cost of state traffic over interstate traffic, when measured by the ton mile, by reason of the increased use of terminals and character of train service is 319.58 per cent. (Exhibit 17.)

In the passenger service there is also a natural excess cost of state traffic over interstate traffic due to the increased use of terminals and the difference in the length of haul between the two classes of traffic. The state traffic receiving two terminal services, one at point of origin and another at point of destination, while the interstate traffic at the most receives only one terminal service in the state and to the extent that this traffic is transstate it receives no terminal service within the state. The difference in the length of haul per terminal handling is another factor in causing excess cost of state over interstate. In the State of Arkansas during the two months' test period, consisting of November and December, 1913, the average state passenger was hauled 9.2 miles per terminal handling, while during the same period the average interstate passenger was hauled 39.5 miles per terminal handling. (Exhibit 6 P-2.) Thus the state passenger used the terminal 4.3 times as much per mile traveled as did the interstate passenger per mile traveled, and, therefore, under the "use" basis necessarily participates in the division of the terminal expense in the same ratio. During the test period mentioned the passenger terminal expenses were 20.58 per cent. of the total expenses assigned to the passengers (Exhibits 13 and 16), and the larger use of the terminal by the state passengers by itself results in an excess

cost of state over interstate per passenger mile of 24.6 per cent.

However, in the matter of line or haulage expense the condition is somewhat reversed and there is an increased cost of interstate passengers over state passengers one mile. This largely owing to the excess car space occupied by passengers riding in the Pullman cars over that occupied by passengers riding in coaches, and also the fact that the interstate passenger uses the Pullman cars in a greater relative degree than does the state passenger. Thus it is found under the "use" basis, that there is an excess haulage cost for the interstate passenger of 11.3 per cent., or an excess cost on the total expenses of 9.17 per cent. The net excess cost of state over interstate passengers, after allowing for the greater use of terminals by the state passenger and the greater use of car space by the interstate passenger is 15.43 per cent. (Exhibit 17.)

That the terminal service is an important factor in the relative cost of state and interstate transportation, and should be recognized and treated separately from the haulage cost, may be demonstrated by converting an average terminal cost per ton into the equivalent average cost of hauling a ton per mile. In the test period it was found that the terminal handling cost was 31.139 cents per ton and the average hauling cost was .465 cents per ton per mile. By dividing the former by the latter we find that the terminal handling cost per ton is equivalent of 66.97 miles of haulage cost. Thus a ton moving 14.2 miles per terminal handling (the average distance per terminal handling traveled by the state ton) would encounter a cost equivalent to 14.2 plus 66.97 miles or 81.17 miles of haul, which is 5.7 times as much as would be charged under a straight ton-mile division. On the other

hand, a ton moving 143.2 miles per terminal handling (the average length of haul per terminal handling of an interstate ton in Arkansas) would encounter a cost equivalent to 143.2 plus 66.97 miles, or a total of 210.17 miles of haulage cost, which is only 1.47 times as much as would be charged under a straight ton-mile division, and only about 25.8 per cent. as much as is chargeable to the state ton mile.

In the passenger service the cost of a terminal handling is equivalent to the cost of hauling a passenger 4.38 miles, the terminal handling cost being 5.443 cents and the average haulage cost 1.242 cents per mile. Thus a state passenger moving 9.2 miles per terminal handling (which is the average distance for state passengers in the test period) would encounter a cost of 9.2 plus 4.38 miles, or 13.58 miles of hauling cost, which is 1.48 times as much as would be charged under a straight passenger-mile division of expenses. On the other hand, an interstate passenger moving 39.5 miles per terminal handling (which is the average haul per terminal handling for interstate passengers in the test period) would encounter a cost of 39.5 plus 4.38 miles, or 43.88 miles, which is 1.11 times as much as a straight passenger mileage proportion would charge, and only about 75 per cent. as much as is chargeable to the state passenger mile.

Obviously, any basis for division of the expenses between state and interstate which does not recognize and treat the terminal expense as a separate proposition, such as the ton miles for freight, or passenger miles for passenger, falls far short of doing justice to the situation.

## Earnings Per Ton Per Mile No Indication as to Whether Rates are Compensatory.

Defendants in their briefs (original, pp. 47-8; reply, p. 4) and elsewhere, call attention to the fact that the Arkansas intrastate earnings were for 1907, 24.79 mills per net ton mile, while the interstate revenues assigned to Arkansas amounted to only 7.76 mills per net ton mile. Defendants do not here or elsewhere call attention to the real controlling factors in determining whether or not a freight rate is compensatory. No mention is made of the relative length of haul or of the large volume of transstate business crossing Arkansas, practically in through trains, and receiving no terminal service within the state.

In the discussion of the relative cost of state and interstate traffic (pages 198 to 200 hereof) it is shown that the movement of a large proportion of state tonnage is on local trains, and that this operates to enhance very materially the haulage cost of transportation and that the cost per terminal handling per ton of freight, state and interstate without distinction, is 31.139c. Inasmuch as each state ton has two terminal handlings, it is necessarily charged with 62.278c per ton for terminal handling; and it requires the revenue received from a 25-mile haul, at 24.79 mills per mile to cover the terminal cost of handling each ton of state business, and this makes no allowance whatever for the actual cost of the line haul. The average intrastate freight haul for these 4 months was 25.44 miles. (Ex. 39.)

That the ton-mile earnings solely relied upon by the defendants as showing the reasonableness of the Arkansas intrastate rates, as applied by the defendants, is

meaningless has been repeatedly declared and demonstrated by the Interstate Commerce Commission.

In the case of *Traffic Bureau of Nashville, Tenn.* v. *L. & N. R. Co.*, 28 I. C. C., 533-5, the Interstate Commerce Commission said with reference to the probative effect of ton-mile earnings which were sought to be used to show the reasonableness of a given rate that:

> "Ton-mile statistics, reflecting as they do neither car loading, train tonnage, nor car nor train mileage, are far from being infallible guides in fixing freight rates. A high average ton-mile revenue may be due to short hauls, a preponderance of which occasions the railroad traffic manager much uneasiness, while it has been repeatedly shown that traffic low in ton-mile earnings may, because of its farther carriage and greater density be the most remunerative."

In the case of *Gustin* v. *A. T. & S. F. Railway Company*, 8 I. C. C., 277-88, the Commission used the following language:

> "The rate per ton per mile rule brings rates down to the narrowest point of scrutiny, and for that purpose is valuable; but it excludes consideration of other circumstances and conditions which enter into the making of rates, no matter how compulsory or imperious they may be, and it cannot, therefore, be accepted as controlling in determining the reasonableness of rates."

In the case of Investigation and Suspension Dockets Nos. 26 to 26-C, 22 I. C. C., 604-620, where the Interstate Commerce Commission had under consideration the rates on lake coal, that is coal originating in West Virginia and transported to ports on Lake Erie for transshipment beyond, it was urged that the low rate per ton per mile indicated that this long haul trainload commodity ought to carry a higher rate. In support of this there was offered in evidence the earnings on mer-

chandise being a little over four times as much per ton per mile as those on lake coal. Mr. Lane, speaking for the Interstate Commerce Commission, used, for comparative purposes, a movement of a trainload of merchandise from Norfolk to Bristol, a distance of 408 miles, containing 35 cars, which earned a revenue of $1,132.16, and a revenue per train mile of $2.77, and per car mile of 7.92 cents, and per ton mile of 9.67 mills, with a similar trainload of coal of thirty-five cars moving 330 miles from Pocahontas to Columbus which earned $1,222.76, the revenue per train mile being $3.02, and per car mile 10.58 cents, while the earnings per ton per mile were only 2.41 mills. After making this comparison, the Interstate Commerce Commission concludes:

> "There could be no better illustration than this of the fallacy of placing reliance upon ton-mile earnings as a basis of rate making. As the Commission has heretofore found in many cases a much fairer basis is that found in the earnings per car mile and per train mile. Much of the profitable freight carried by the railroads of the United States, and perhaps this might be made broader and could be truthfully said that most of the freight which pays the carriers the best is that which yields the lowest rate per ton mile."

So far as we have been able to discover, the Interstate Commerce Commission has not undertaken in any of its opinions to find the cost of conducting the interstate business segregated from the cost of conducting the intrastate business, and it, therefore, had no occasion to make a direct investigation into the line and terminal cost results. Attention, however, is called to the views of the Commission in the recent case of *Railroad Commission of Louisiana* v. *Arkansas Harbor Terminal Railway Company*, 41 I. C. C., 83, 177, in

which the Interstate Commerce Commission refers to an investigation made by the Texas railroad companies of the terminal and station costs of handling less than carload shipments, in which there was included the wages of employees engaged in handling shipments at stations, the cost of stationery, lighting and heating at stations, station repairs, station expenses and switching of cars. Information was secured for nine representative stations and the results of the test made indicated that these known costs per ton of 2,000 pounds for handling less than carload traffic were $1.77 for one handling, or including the handling at the other end $3.34, or 17.7 cents per hundred pounds. Apparently this terminal cost was challenged by the Texas Commission, principally by criticism.

Referring to this terminal expense, the Commission said:

> "This scale was proposed at the hearing before us in December, 1915, and met with considerable objection and criticism from some of the protestants, who also asserted that the computations concerning these station costs were erroneous in certain particulars. It does not appear, however, that the errors pointed out in the computations lead to any serious errors in the results.
>
> While we are not disposed to accept all of the claims of the carriers with reference to these station costs, for the reason, among others, that the computation made as to the freight stations examined may not represent the average station costs throughout the State of Texas, due consideration must be given to the data submitted. They are strongly indicative that the scale of rates known as the Shreveport scale is too low for short hauls in the territory in which it is intended to apply."

In its opinion in the Missouri River-Nebraska cases, 40 I. C. C., 201-64, the Interstate Commerce Commission had evidence of a character somewhat similar to

that referred to above presented to it and said in reference thereto (pp. 255-6):

> "It was found by the Nebraska Commission, as has been stated, that the average direct station terminal costs of handling intrastate less than carload shipments under the rates for the first four classes at the Lincoln station of the Burlington and at other Nebraska stations on shipments from Lincoln, were 10.92 cents per 100 pounds. These direct costs include no allowance for general expenses, taxes, depreciation, or return upon property. The average revenue per 100 pounds which is at least a minimum requirement to provide for such items may be approximately determined for present purposes by dividing 10.92 cents by 0.68, the average operating ratio of the Burlington for the years 1910 to 1915, inclusive. The quotient is approximately 16 cents. * * *
>
> It appears that under both the Nebraska distance tariff and the Iowa-Nebraska scale the base rates are too low to cover direct terminal costs, general expenses, taxes, depreciation, and return upon property. Under the Iowa-Nebraska scale this is compensated for in the increased money rate of progression for the first 40 miles. The carriers urge that rates which reflect full terminal costs cannot be maintained for the very short distances because of competition with the team, dray and auto truck. Terminal services, however, are rendered irrespective of the length of haul. The rates prescribed by this Commission are maximum rates and may be reduced to meet competition."

Another and later important interesting opinion of the Interstate Commerce Commission, however, dealing with this subject, is that of *City of Memphis* v. *C. R. I. & P. Ry. Co. et al.*, 39 I. C. C., 256, in which the Interstate Commerce Commission found that the Arkansas intrastate freight rates were lower than the interstate rates from and to Memphis, Tenn., were unduly burdensome upon interstate traffic, and designed

to discriminate against interstate business. Counsel for defendants in this case was counsel for interveners in that case. We quote as follows from the opinion of the Commission (pp. 263-5):

> "In June, 1908, Standard Distance Tariff No. 3 was promulgated by the Arkansas Commission. In July, 1908, the tariff was enjoined by the Circuit Court of the United States for the Eastern District of Arkansas upon complaint by the carriers. Pending an appeal to the Supreme Court and under permission from the District Court to increase their rates 33⅓ per cent. the carriers on June 1, 1909, made effective the so-called 'court' tariff prescribing rates higher than those authorized by Standard Distance Tariff No. 3 by from 22 to 24 per cent. The Supreme Court in June, 1913, reversed the District Court and dissolved the injunction, but without prejudice. *Allen* v. *St. Louis Southwestern Ry. Co.*, 230 U. S., 553. Thereupon Standard Distance Tariff No. 3 again went into effect. That tariff was still effective when the present case was heard in December, 1914, and February, 1915.
>
> After the Supreme Court's decision in the *Allen Case, supra,* the various carriers interested in the rates prescribed by the State Commissions of Oklahoma, Arkansas, and Missouri, among which are the defendants, formed a committee of statisticians and traffic officers to determine a method of better presenting testimony to show the effects of the state-made rates upon their revenues. This committee, as a result of its labors, devised the so-called Oklahoma formula for allocating state and interstate expenses. In *Boyle* v. *St. L. & S. F. R. R. Co.*, 222 Fed., 539, this formula was substantially approved by the District Court for the Eastern District of Arkansas, and as a result the court enjoined the application of Standard Distance Tariff No. 3 on the Frisco lines, that carrier being the sole petitioner. The court said:
>
> 'The court finds that the rates enjoined yield no profit on the intrastate business, but on the contrary show a loss.'

Following the *Boyle Case* the Frisco increased its rates intrastate. Bills in equity have been filed by the other defendants herein asking the same relief as that granted the Frisco. The *Boyle Case* is now before the Supreme Court of the United States on appeal.

From the time the Railroad Commission of Arkansas first prescribed rates, rules, and regulations for intrastate traffic defendants have protested and contested the reasonableness thereof. Standard Distance Tariff No. 3 has been continuously under attack by the defendant carriers, and even interveners admit that it required revision. This revision has been completed since the hearing, and is embodied in the so-called Standard Distance Tariff No. 5, which has been made a part of this record. From an examination of the new tariff it appears that the same general structure of rates is continued, but that certain rates for distances over 125 miles are reduced, although the Arkansas interveners admitted that the rates in Standard Distance Tariff No. 3 for such distances were 'unduly low.' It thus appears that Standard Distance Tariff No. 5 will give the carriers operating in Arkansas no substantial relief.

The present unduly low rates within Arkansas are due at least in part to the attempt by the Railroad Commission of Arkansas to protect Arkansas shippers and build up Arkansas jobbing centers. Certain of its annual reports are cited in the record as follows:

From the 1902 report:

'At all points where the Commission's tariffs have come in competition with rates from interstate points they have had the effect of breaking down the interstate rates.'

From the 1904 report:

'The effect of the Commission's Standard Distance Tariff has been to force a reduction of interstate rates to local points in Arkansas to about 60 or 70 per cent. of the scale formerly in effect.'

From the 1905 report:

'We have examined the schedules of rates of

other states and find that the (Arkansas) rates are lower than in most states.

An examination of the present rates from Memphis and St. Louis to points in our state as compared with rates in effect in 1900 when the Commission's tariff was put in will show that the interstate rates have not only been reduced from 25 to 40 per cent. but that commodity grouping in the interstate tariff has been changed to correspond with that tariff, so that the Commission has not only succeeded in eliminating the discrimination and reducing the freight on Arkansas local traffic, but has been instrumental in reducing the tax for freight on all Arkansas commerce, state and interstate.'

In view of all the facts of record we are of opinion and find that the maintenance of class and commodity rates between points in Arkansas lower by more than a reasonable bridge toll across the Mississippi River than the interstate class and commodity rates for similar distances between Memphis and Arkansas points contemporaneously in effect results in a relationship between state and interstate rates which is unduly prejudicial to Memphis and constitutes a burden upon interstate commerce. This discrimination the carriers will be required to remove. *Houston East & West Texas R. R. Co.* v. *U. S.*, 234 U. S., 342.

We are further of opinion and find that the present interstate class and commodity rates between Memphis and Arkansas points, with the few exceptions hereafter noted, are reasonable as a whole."

The Commission then proceeds to consider rates on individual commodities.

This opinion confirms the conclusion that the lower interstate ton-mile earnings are due not to the in and outbound interstate business but to the long haul heavy loading transstate business.

## The Interstate Commerce Commission Findings and Conclusions in Passenger Fare Cases.

Reference is made in the original (p. 48 and pp. 83-8) and reply (pp. 6-7) briefs of defendants to the opinions of the Interstate Commerce Commission in passenger fare cases, and there is attempted to be drawn therefrom the conclusion that the plaintiff and other railway companies, in presenting their application for increases in passenger fares, in the Western Passenger Fares case, concealed from the Interstate Commerce Commission the formula for the apportionment of expenses between freight and passenger, and state and interstate business, presented to and approved by the trial court in the case at bar. This assumption is without any foundation in fact, and is an effort to prejudice the case of the plaintiff upon an alleged assumption of unfair dealing in presenting its case to the Interstate Commerce Commission. Counsel for the defendants could have ascertained, by an examination of the record in the Western Passenger Fares case, that the statement that the formula was withheld from the Interstate Commerce Commission is not correct. However, inasmuch as the defendants, and the representatives of other state Commissions were parties protestants to the granting of increases in passenger fares, it may be assumed that if they had felt that the plaintiff had taken a different attitude before the Interstate Commerce Commission than before this court, they would have directed the attention of the Interstate Commerce Commission thereto.

We invite this court's consideration of the issues submitted to the Interstate Commerce Commission and its findings in the several passenger fare cases with which it has recently had to deal. During the pendency

of this litigation, and while the charge of the unreasonableness and confiscatory nature of the 2-cent fare statute was pending judicial determination in the United States District Court for the Western District of Arkansas, the Railroad Commission of Arkansas joined with the Corporation Commission of Oklahoma and the Public Service Commission of Missouri, in a complaint filed with the Interstate Commerce Commission on the 14th day of May, 1914, alleging that the interstate passenger fare of 3c per mile in Arkansas, Missouri and Oklahoma was unreasonable and unjustly discriminatory to the extent that it exceeded the intrastate fare of 2c per mile contemporaneously maintained in these states, and prayed that an interstate fare of 2c per mile be prescribed. In other words, the defendants, the Railroad Commission of Arkansas, invoked the jurisdiction of the Interstate Commerce Commission upon the charge that the 3c interstate fare prevailing in Arkansas was unreasonable to the extent that it exceeded 2c per mile. Relief was denied and the complaint dismissed. We quote from the opinion as follows (*Corporation Commission of Oklahoma et al.* v. *The A. T. & S. F. Ry. Co. et al.*, 31 I. C. C., 532, 539-40):

> "The density of passenger travel in the territory the rates in which are involved in this proceeding is comparatively low, as is shown by a table offered in evidence. This table follows:
>
> Density of passenger traffic by I. C. C. districts for year ending June 30, 1911, as per Interstate Commerce Commission statistical report for 1911.
>
> Passengers 1 mile per mile of line:
>
> | | |
> |---|---|
> | Eastern district | 251,075 |
> | Southern district | 92,839 |
> | Western district | 102,555 |
> | State of Oklahoma (as per report of corporation commission, 1911) | 85,076 |
>
> Description of above districts:
>
> The eastern district comprises that portion of the United States bounded on the west by the north-

ern and the western shore of Lake Michigan to Chicago, thence by a line to Peoria, thence to East St. Louis, thence down the Mississippi River to the mouth of the Ohio River, and on the south by the Ohio River from its mouth to Parkersburg, W. Va., thence by a line to the southwestern corner of Maryland, thence by the Potomac River to its mouth.

The southern district comprises that portion of the United States bounded on the north by the eastern district and on the west by the Mississippi River.

The remainder of the United States, exclusive of Alaska and of island possessions, is included in the western district."

The contention of unreasonableness of interstate fares was disposed of in the following language:

"From a careful review of the record and having considered the contentions of the respective parties we do not feel justified in condemning the rates complained of as unreasonable." (p. 542.)

It may be noted in passing that the passengers one mile per mile of line transported over the railway of the plaintiff in the State of Arkansas is 75,333, being much lower than the average for any one of the districts above referred to, and substantially lower than in Oklahoma.

The Interstate Commerce Commission, with ample authority and broad experience, after exhaustive consideration, decided upon the merits of the controversy, that the evidence did not establish the unreasonableness of the 3c interstate passenger fare in Arkansas. There was no effort by either party in that proceeding to make any distinction between the relative cost of conducting the state and interstate passenger business. The Interstate Commerce Commission considered the revenues and expenses of the passenger business as a whole and without reference to the relative

cost of conducting state and interstate transportation. The defendants in this case having invoked the jurisdiction of the Interstate Commerce Commission, as plaintiffs, and submitted to it all available evidence in support of the unreasonableness of the 3c interstate fare, and having had that contention denied, upon a consideration of all passenger business in the state, it seems to us they are morally, if not legally, estopped from contending that a 2c fare is compensatory. The finding of the Interstate Commerce Commission that a 3c passenger fare was not unreasonable or excessive, of necessity carries the conclusion that a 2c fare is unreasonably low and noncompensatory.

We call attention to the resume of the findings of fact made by the Interstate Commerce Commission in the Western Passenger Fares case, decided December 7, 1915, 37 I. C. C. 1, 41, as follows:

> "The evidence in this case has shown:
>
> Substantial improvements in the passenger service have been made since 1900 at large expense to carriers, resulting in a greater degree of comfort, convenience, and safety to the travelling public.
>
> The conditions under which the passenger service is performed do not admit of all the corresponding economies in operation that have been effected in the freight service.
>
> The increased cost of service due to greater costs for labor, materials, and taxes, not offset by corresponding economies, which are practicable in operation, is entitled to consideration.
>
> The passenger business in the territory principally affected by the proposed increases is less profitable than the freight business.
>
> The basis for the fares now applied for the transportation of interstate passengers is less in this territory than in the states south, east, and west thereof.
>
> There is some justification for a lower basis of

fares in this territory than in the states west and south thereof.

This increased revenue which apparently should come from the passenger traffic should not, however, be altogether imposed upon the interstate traffic. Manifestly a person journeying by rail within the boundaries of a state cannot expect to travel at the expense, in any degree, of the interstate passenger. State and interstate traffic should each contribute equitably to the return the carrier is entitled to earn on the value of its property devoted to the passenger service. The revenue of respondents from intrastate passenger traffic within these states is approximately 96 per cent. of that from the interstate traffic. While we should permit reasonable interstate fares we cannot sanction fares that are higher than are reasonable for the service performed because intrastate fares are alleged or shown to be unduly low."

The finding of the Interstate Commerce Commission is as follows:

"The carriers have failed to justify the increased basis of 2.5 cents and 3 cents per mile, but have justified an increase in the basis for interstate fares in the States of Illinois, Wisconsin, the upper peninsula of Michigan, Minnesota, Iowa, Nebraska, Missouri north of the Missouri River from St. Louis to Kansas City, and Kansas on and north of the main line of the Union Pacific Railroad from Kansas City to the Colorado state line from 2 cents to 2.4 cents per mile.

The carriers have justified an increase in the basis for interstate fares in Missouri south of the Missouri River and in Kansas south of the main line of the Union Pacific Railroad from Kansas City to the Colorado state line from 2 cents to 2.6 cents per mile.

Proposed increases in fares from points within the territory primarily affected by these increases to points in the states east thereof, which may be arrived at by using the fares constructed on the basis herein found reasonable within the territory within which such basis apply and the lawfully

published and filed fares in the states east of the territory described, have been justified.

Fares from points in the territory affected by these increases to points on the main lines of these carriers running westerly toward the Pacific Coast and southerly through Oklahoma and Arkansas and states south and west thereof have not been justified in those instances where they are higher than would result by using the basis herein given for the territory herein described and a basis of 2½ cents per mile in the States of North and South Dakota and a basis of 3 cents per mile west and south of the territory described." (p. 45.)

It is disclosed by the opinion that in every instance the returns of the carriers plaintiffs in this action upon the value of their property devoted to the passenger service was found by the Interstate Commerce Commission to be inadequate—in fact confiscatory, and this without any distinction in the matter of the cost of conducting intrastate and interstate passenger transportation. The Arkansas Railroad Commission was heard in this case and the Interstate Commerce Commission correctly found that a 3-cent passenger fare in Arkansas constitutes a reasonable and just charge for interstate transportation.

In considering the rate of return found by the Interstate Commerce Commission on the several roads involved in the litigation in the Western Passenger Fares case, it should be remembered that the Commission took into consideration the revenues received from all passenger traffic, state and interstate, and that such revenues included the mileage of each of the carriers where both state and interstate fares were on a 3c per mile or higher basis as well as the mileage in those states having a 3c per mile or higher interstate passenger fare and a 2c per mile intrastate passenger fare. A very large part of the mileage of the several

line is included in these two classes of states. In the following states 3c interstate passenger fares prevail: Missouri, Oklahoma, Arkansas, Tennessee, Texas, Colorado, New Mexico, Arizona and California. Three cent or higher intrastate passenger fares prevail in Texas, Colorado, New Mexico, Arizona, California and Tennessee (37 I. C. C. 1, 30, 44-6).

It is important in considering the rate of return realized upon the property devoted to the freight and passenger service, as found by the Interstate Commerce Commission that the rate of return upon that part of the value of the property of the St. Louis & San Francisco Railroad Company devoted to the freight business was 4.56 per cent., and on that part of its property devoted to the passenger business was *only* 1.45 per cent.,—this notwithstanding the fact that the Frisco was receiving 3c interstate fares in Missouri, Oklahoma, Arkansas, Texas and Tennessee, and 3c intrastate fares in Texas, Mississippi and Tennessee. It should also be considered in this connection that in arriving at the return of 4.56 per cent. on the value of the property of plaintiff devoted to the freight business, and 1.45 per cent. of the value of its property devoted to the passenger business, the Interstate Commerce Commission used the so-called direct charge basis in apportioning maintenance of way and structures expenses between the freight and passenger business.

In *Business Men's League of St. Louis* v. *The A. T. & S. F. Ry. Co. et al.*, 41 I. C. C., 13, the Interstate Commerce Commission held that 2.4c per mile was a reasonable passenger fare for both interstate and intrastate passenger business in the State of Illinois, where the density of the passenger travel is 230,269 passenger

miles per mile of road, whereas in Arkansas on the railroad of the plaintiff the average is about 75,000 passenger miles per mile of road, less than one-third what it is in Illinois.

We quote from the opinion of the Interstate Commerce Commission in the Business Men's League case as follows:

> "In the Five Per Cent. Case, *supra*, at page 407, the Commission said:
>
> 'The need of additional revenues is greatest in Central Freight Association territory, and existing statutes in Ohio, Indiana, Illinois and Michigan may be obstacles to the raising of passenger fares in those states. But we are confident that if these statutory fares are clearly shown to be unduly burdensome to the carriers, the people of those great states will cheerfully acquiesce, as the people of New England have done, in reasonable increases, and that the necessary legislative authority will be promptly given. The traveling public is giving expression to its demands for better service, better accommodations, and for the adoption by the carriers of all the devices that make for safety. A public that demands such a service cannot reasonably object to the payment of a reasonable compensation therefor.'
>
> The interstate passenger fares in Central Passenger Association territory were increased generally to a basis of 2½c a mile following this expression of opinion; but the Illinois intrastate fares are still held down to 2 cents a mile, notwithstanding that much of the adjacent territory has, when the travel is interstate, a higher basis of fares. There are now 38 states in which passenger fares are permitted on a basis higher than 2 cents a mile, and Illinois is on the western confines of Official Classification territory, where the usual level of interstate passenger fares is not less than 2½ cents per mile, and partly included in the territory where the basis of passenger fares has been fixed at 2.4c per mile. *Increases in Passenger Fares in Western Territory*, 37 I. C. C., 1. As to the

Chicago, Peoria & St. Louis Railway Company the application of the 2 cents a mile basis has been enjoined by the Federal Court as being confiscatory. * * *

The improvement of the passenger service and equipment which has been demanded and accomplished at increased cost has not been met with an attendant increase in the revenue or in potential capacity of carriage. Steel cars and larger engines generally require heavier rails and other attendant increased expenses, and a sufficient time has not elapsed to ascertain definitely whether or not the percentage of maintenance charges on this new stock will be less or greater than upon the old." (21-25)

"STIMULATION OF TRAFFIC."

Counsel take a curious position in regard to the effect of lower passenger rates in the way of stimulating travel. In Plaintiff's Exhibit 61, in which the earnings and expenses, including taxes, rentals, hire of equipment and every class of expense, and the return upon the value of the property for the four years, 1910, 1911, 1912 and 1913, are set up, it was necessary, in order to ascertain the effect of the inhibited freight and passenger rates, to deduct the difference in the revenue that had accrued from the transportation of freight and passengers between the rates actually charged during those periods, as shown by Exhibit No. 33, and what would have accrued had the inhibited rates been charged. Counsel say the diminution of the revenues for the purpose of placing them on the basis of the rates in controversy was erroneous because, forsooth, if those rates had been in force it might have stimulated traffic and increased the number of passengers, and the tons of freight, moved during those years, while as to the four months in 1907, when the inhibited rates were in force, they say the com-

parison is unfair because the exhibits demonstrate that that period was not typical. Just on what ground such an assertion can be supported is past our comprehension.

It is manifest that the only way by which the effect of given rates in the way of return on the value of the property can be determined is by applying those rates to the traffic as it exists at the time, and the question as to whether the lower rate affected the result of such application by stimulating traffic, and if so, to what extent, must be determined by later developments. Realizing that it was a proper subject of inquiry in this case, the plaintiff introduced evidence for the purpose of throwing light on the question as to the effect the inhibited rates would have in increasing traffic and thereby making up, by a larger volume of business induced by the lower rate, for the decrease in revenue resulting from the use and application of that rate. Mr. Hamilton testified at some length on this subject at pages 457-459 of the record and, in connection with his evidence filed Exhibit 42, which contains a statement of facts and a table showing the difference in intrastate passengers in the months of August, 1912, and June, 1913, when a rate of three cents was in force, and August, 1913, when the rate was two cents. Counsel, in discussing this table, have fallen into the error of assuming that the second and third columns which appear on page 3 of the exhibit, represent different sales, and say the court below fell into an error by using only the ticket sales contained in the last column. The court was right, inasmuch as the first column contains the number of tickets sold, the second column the number of cash fares paid at the stations mentioned, and the last column, the one used by the court, represents the total, and therefore cumulates the two classes of passengers, namely, those buying tickets and those paying cash fares on the trains. The court

found, at page 924 of the record, that at certain stations mentioned as interior stations, namely, Jonesboro, Hoxie and Ashdown, a large part, if not all, of the excess, which was from 28 to 33 per cent. at the different stations, was attributable to the fact that those towns were near the border, and so located that there was a large interstate travel to and from them, on which the rate was three cents, as against two cents for intrastate travel, and that therefore the same conditions which existed at the border stations would naturally exist at those points. The facts upon which the finding was made are all in the record, and the court was obviously right in its conclusion. Mr. Hamilton's testimony makes it perfectly clear that the greater part of the increase in intrastate traffic was produced by the purchase of intrastate tickets, or the payment of intrastate cash fares, by interstate passengers, and even with an increase of 21 per cent. in intrastate passenger miles there was a falling off of intrastate passenger revenue of 14 per cent.

This demonstrates the fact that even if all the increase, or stimulation of travel, had been *bona fide* intrastate and attributable to the lowering of the rates, it would not have increased the earnings, and the only purpose for which such an inquiry is proper in this case is to determine whether the loss would be made up by increased traffic. Mr. Nay, who had a similar experience on the Chicago, Rock Island & Pacific Railroad, corroborates Mr. Hamilton's testimony. (333 to 336, and 436 and 437.)

In opposition to the records and testimony of the plaintiff, the defendants produced the testimony of Mr. Simson, who testified that he did not think it possible to estimate with any accuracy the results of changes in rates; that he did not know anything about the traffic conditions on the St. Louis & San Francisco Railroad in Arkansas, or on any part of that system of roads, and, further, that

it was impossible, when you have the statistics of a certain number of passengers traveling a certain number of miles for a given year under a through three cent rate, to assume that under a two cent rate just exactly the same number of passengers would have traveled that same number of miles. No such assumption has been made. The records have been introduced, and in fact a test was made, for the purpose of determining whether the increased traffic was *bona fide* intrastate, and the results of that test are developed in the testimony of Mr. Hamilton, based on reports made by conductors and traveling auditors, which can not be overcome by general assumptions and conjectures of a witness who admits that he had no knowledge whatever in regard to existing conditions. That is harking back to the old methods that were condemned in the opinions of this court in the cases reported in 230 U. S. Mr. Simson further testified that he was never a traffic man and had no knowledge or experience in regard to traffic conditions, or as to the effect of changes in rates in stimulating traffic. His testimony will be found at pages 792 and 793 of the record. When asked the effect of a change in freight rates, he said it would probably have the same effect, as a change in the rating would undoubtedly affect the direction of traffic. And counsel referred to cases before the Interstate Commerce Commission where it was shown that a change of freight rates would deflect traffic from one jobbing center to another. The suggestion of the witness, and the cases before the Interstate Commerce Commission referred to, are where changes result in different and unequal rates, but where the entire scale of intrastate rates are changed uniformly, and their relation maintained throughout the entire territory, the change would not produce the effect contended for. The inhibited passenger and freight rates were confined to the State of Arkansas and applied to all

railroads and all intrastate business. The change was uniform in its operation and effect upon all railroads, and all freight traffic, and it needs no argument to show that under such circumstances, where the change is uniform, and the relations unchanged in every respect, the movement of traffic would neither change in direction nor be deflected.

Counsel cite and quote from the opinion of the Interstate Commerce Commission in the Western Passenger Fare Cases, 37 I. C. C., 1, in which the Commission found that three cents was a reasonable interstate rate in Arkansas.

In *Oklahoma Corporation Commission et al.* v. *The A. T. & S. F. R. Co. et al., supra,* 31 I. C. C., 532, decided on July 18, 1914, in which proceeding the Arkansas Commission was a party petitioning for a decrease in the three-cent interstate passenger fares on railroads in that state, the Interstate Commerce Commission held that that rate was not unreasonable in the State of Arkansas. In examining the question the Commission found, by taking one of the exhibits and comparing the 3-cent fare period with the 2-cent fare period, that it showed an increase during the latter period, and while the 2-cent rate was in force. From the same table a similar comparison showed the opposite result, and other evidence introduced in the case, showing the extent of passenger travel in thirteen states, showed that the passengers carried one mile increased in practically the same ratio in five states where there was no change in the passenger fares, as it did in eight states where the fares were reduced. Comparing two months' business, January, 1913, and January, 1914, in the former of which the fare was 3 cents, and the latter 2, showed a decrease in revenue during the 2-cent period. After citing these facts, the opinion states that they illustrate the fact that there are

so many conditions determining the extent of passenger travel that correct conclusions can not be reached from a consideration of any one condition alone; that population was increasing in the states, representing a greater density of population, and making more travel. Periods of prosperity or reverses affect the total volume of travel. *That the comparison of revenue between 2-cent and 3-cent periods prove nothing in favor of the lower rate, because the evidence clearly shows a large number of interstate passengers did not pay the higher interstate fare, but reticketed at border stations, by which means the passengers paid the interstate fare for only a short distance, and what appears in the carrier's account as intrastate passenger revenue would, under normal condition, be interstate.* The Arkansas lines were involved in the litigation, and the facts developed in this case on this point are similar to those recited by the Commission.

The trial court gave most careful consideration to the claim of the defendants that the 2-cent passenger fare operates to stimulate traffic (Rec., 923-5; 222 Fed., 555), and concludes his consideration of the subject in the following language (925):

> "From the evidence the court finds as a fact that the two cents' rate does not stimulate passenger traffic, except at the expense of the interstate. People are not in the habit of traveling merely because rates are lower. It is probably different when special reduced rates are made for certain occasions, but in such cases it is the special occasion which causes it."

ASSIGNMENT OF INTERSTATE REVENUES TO THE STATE OF ARKANSAS FOR THE FOUR MONTHS OF 1907, AND CERTAIN CONTENTIONS IN RELATION THERETO PRESENTED IN DEFENDANTS' EXHIBITS Q, R, S, T, U AND V.

The defendants, by means of Exhibits Q, R, S, T, U and V, claim that the railroad's general auditor in assigning freight revenue to Arkansas employed bases which were erroneous in certain minor particulars, as applicable to the four months ending December 31, 1907. The contentions made in these exhibits do not relate to any other period than the said four months of 1907. It was at first claimed that they affected the *location of intrastate freight* revenue to the state for the four months of 1907 as well as the apportionment of interstate freight revenue to the state. *This contention was shown to be without foundation.* The contention, and the figures in the exhibits referred to make no distinction between intrastate and interstate revenue, but like the preceding exhibits, treat of the assignment to Arkansas of all freight revenues, state and interstate, combined.

In current railroad accounting practice, it is necessary from time to time to make certain adjustments or revisions of the freight revenue figures originally credited on the books of the carriers—claims for overcharges in rates, claims for absorption of switching charges, adjustments of rates on through cotton movements, and similar matters are presented after the original entries of revenues have been made on the carriers' books.

On Exhibit Q it is shown that in the four months ended December 31, 1907, the total freight earnings of the St. Louis & San Francisco Railroad on its entire line were $9,283,962.98, and that the adjustment against this amount of revenue for the entire line of the St. Louis & San Francisco Railroad in all states on account of overcharges,

switching claims, cotton claims, etc., amounted in the same four months to a deduction from such gross freight revenue as originally entered on the company's books, in the sum of $501,661.84.

There is also shown upon Exhibit Q an adjustment made by the auditor of the railroad against the freight revenue originally credited on the books for these four months for the entire line, amounting to $393,608.01, which is shown to be "adjustments of charges and prepay-connecting lines." This item of $393,608.01 includes also the amount of $255,024.84, shown as the last figure in the left hand column of Exhibit Q as "Net Decrease of Freight in Transit." These matters are explained by Mr. Simson, one of the accountants for defendants, on pages 619 and 620 of the printed record. In the first instance the defendants raised no objection to the character of these adjustments (with the exception of the item of "Freight in Transit," which will be discussed later) of the revenue of the entire line. Their objection went to the apportionment of these adjustments to the State of Arkansas. They claimed that the auditor of the railroad had erred in making his assignment of these adjustments to the State of Arkansas upon the basis of the relationship of the mileage of the railroad in that state to the mileage of the entire railroad, and that the apportionment of these adjustments should have been made on the relationship of the gross revenue earned in the State of Arkansas on freight traffic to the gross freight revenues of the entire railroad. This is conceded by the plaintiff.

It is the practice, sanctioned by official rate regulating bodies, to allow grain to be milled and cotton to be compressed in transit, charging the local rate into the mill or compress on the raw grain or uncompressed cotton and, subsequently, when the milled or compressed product

goes forward from the milling or compressing point, to make certain adjustments of through rates so as to refund a part of the local rate into the mill or compress.

In Exhibit R the defendants treat of such adjustments, made upon the entire grain and cotton milling in transit movement of the entire St. Louis & San Francisco Railroad for the four months ended December 31, 1907, and here again the difference between the state's accountants and the railroad's auditor is that the auditor made an assignment of these adjustments to Arkansas on the basis of road mileage as previously explained in connection with Exhibit Q, while the defendants contend, and we concede, that this adjustment should have been apportioned to Arkansas in the relationship of the gross revenues on these milled or compressed commodities in that state to similar revenues of the entire railroad.

On Exhibit S, the figure of $393,608.01, appearing in Exhibit Q is repeated, and the exhibit simply treats of the assignment of this amount of adjustment of freight revenue as between the State of Arkansas and the balance of the railroad—the railroad's auditor having applied a road mileage prorate and the state contending (properly, as the plaintiff admits) that such an assignment should have been made upon the basis of the related gross revenue as explained in connection with Exhibit Q.

Exhibit T is simply explanatory of Exhibit U, which follows it. It shows the amount of freight earnings in transit in total for the entire St. Louis & San Francisco Railroad at the end of each month for a period of nine years, included in which are the four months ended December 31, 1907, of which the state's accountants treat in its Exhibit "U."

For the information of the court, it may be well to state here in condensed form (as is disclosed in detail by

the record in the case) what is meant by "Freight Revenue in Transit."

In addition to taking up on its books, as freight revenue earned, the charges upon shipments which have arrived at their destinations and been accounted for by agents, or connecting carriers, the St. Louis & San Francisco Railroad, each month, also credits its freight revenue account with an estimate of earnings upon freight which is "in transit" and has not yet been reported as having been received at destination. These estimates credited to freight earnings in the current month's account are adjusted to the actual figures or amount of freight revenue earned on these particular shipments in subsequent months, after such shipments arrive at destination and actual earnings thereon are ascertained. This method of handling is in vogue on a great many railroads and has been for many years.

In Exhibit "U" the defendants' accountants call attention to the fact that in adjusting these freight in transit estimates for the entire St. Louis & San Francisco Railroad, freight revenues for *the entire line* in the month of September, 1907, received an added credit of $197,518.07, whereas, in the month of December, 1907, the adjustment of the freight revenue in transit resulted in a deduction from the freight revenue account of *the entire line* of $452,542.91. The State's accountants claim that this was an abnormal situation, and have, in Exhibit U, reinstated in the freight revenues of the entire line $255,-024.84, the net difference between the in transit credit to September, 1907, freight earnings and the deduction from the December, 1907, freight earnings.

This reinstatement of $255,024.84, they have prorated as between the State of Arkansas and the balance of the railroad on, basis of the gross revenues for these four months before this adjustment was made. The net effect

of this was, as shown in Exhibit U, to add to the freight revenues of every kind in the State of Arkansas for the four months ending December 31, 1907, $27,316.22.

In Exhibit V, there is shown first the freight revenues assigned to Arkansas by the auditor of the railroad in his report to the State Railroad Commission for the four months ended December 31, 1907, amounting to $852,-610.53, which is the amount appearing in the Railroad's Exhibit No. 27-A as the gross revenue from freight traffic in Arkansas, intrastate and interstate combined, for these four months before the equating process was applied thereto.

To this amount of $852,610.53, the state's accountants in Exhibit V have added what they determined was the Arkansas proportion of the adjustment set forth in Exhibits R, S and U. The net effect of this is to increase the total freight revenues in Arkansas set up by the railroad's auditor as $852,610.53 to the figure which the state's accountants claim is correct, namely: $893,121.69. The plaintiff's contention concerning Exhibits R, S, T, U and V is and the facts are that *none of the adjustments of freight revenue in the State of Arkansas suggested therein by the state's accountants have any relation whatever to, or any effect upon, the intrastate freight or passenger revenues of the company in the state in any of the periods covered by the exhibits in this case.* Analysis and comment in detail on these exhibits is given in the testimony of Mr. Hamilton on pages 834 to 839 inclusive in the printed record.

ADJUSTMENT OF MAINTENANCE OF EQUIPMENT AND TRANSPORTATION EXPENSES, FOR THE FOUR MONTHS OF 1907.

DEFENDANTS' EXHIBITS W AND X.

In their efforts to show that the passenger fares and freight rates were compensatory in the four months of 1907, the defendants used the assignment made under the old or Douglas formula, adjusting same so as to best serve their purpose, for the apportionment of maintenance of equipment and transportation expenses assigned to Arkansas, and in this four months applied the assignment made in the old or Douglas formula of maintenance of way, traffic and general expenses. Their adjustment of the old or Douglas formula for the apportionment of maintenance of equipment and transportation expenses operated to reduce the assignment of expenses to Arkansas in the four months of 1907 by $18,165.31, the effect of which was to reduce the operating expenses assigned and located to Arkansas under the Douglas formula by 1.8 per cent. The amount assigned under the Douglas formula, which involved many somewhat crude estimates, was $39,945.72 less than the amount located and assigned under the formula applied by the plaintiff in its exhibits, carefully worked out in detail. The net result of their modifications of the results under the old or Douglas formula, and their use of such modified Douglas formula results was to reduce the operating expenses assigned to Arkansas in the four months' period by $58,111.03.

The fact that the auditor of the railroad had a formula for the purpose of assigning expenses as between the various states through which the railroad operates, and that in assigning, in the month of September, 1907, a portion of the expenses of the entire railroad to the State of Arkansas, he departed from this formula in some minor matters in the compilations affecting that one

month's expenses, is discussed at length in the record. A correction of these departures is set forth in Exhibits "W" and "X," the first of which treats of maintenance of equipment expenses, and the second, of sundry transportation expenses. The whole amount of the changes indicated by these exhibits as affecting the expenses assigned to the State of Arkansas, aggregated for all classes of traffic conducted therein—intrastate, interstate, freight, passenger and mail and express is too small to have any effect or material bearing on the case. Further, so far as the plaintiff's exhibits are concerned, these departures in method by the railroad's auditor in September, 1907, were corrected, as is shown in the testimony of Mr. Hamilton, before the auditor's expense figures for these four months of 1907 were equated to the basis of the new formula, filed as Exhibit No. 1, in the manner previously explained. It may be well to call the attention of the court here to the statement made by Mr. Hamilton at several places in the record concerning the soundness of this equating process to the effect that these departures in method in the month of September, 1907, had been corrected, and that the figures prepared by the auditor of the railroad upon which the equation referred to rests, had been placed upon a uniform basis throughout all the periods covered by the exhibits in this case before such equation was made.

This is shown by the following testimony of Mr. Hamilton:

> "In these Exhibits "W" and "X," the state has worked out in detail changes in Mr. Douglas' assignment under his old formula for the months of October, November and December, 1907, so as to make the figures for those three months agree with the departure which Mr. Douglas made in the application of his formula in the month of September, 1907.
>
> The state's accountants have also, in these exhibits, substituted, to some extent, their judgment

of what Mr. Douglas ought to have had in his formula for what he really had in his formula.

I think I have said heretofore in the record, and been somewhat criticised for it, that it did not make any difference whether Mr. Douglas divided his expenses by locomotive miles or car miles, or potatoes, or apples—so far as our purpose was concerned, as long as he stuck to his unit, his basis.

After we reworked our Exhibit 27-A to put the one month on a parity with the four years and three months, instead of reworking the four years and three months to put them on a parity with the one month, we had, after that was done in Exhibit 27-A, Mr. Douglas on a uniform basis upon the principle of his formula.

I have said that Mr. Douglas' basis of his formula, when this correction for September is made, becomes uniform and consistent down to June 30, 1913, where our concern with it stops, so far as this issue is concerned." (850, 851) See Mr. Nay's evidence, *supra*. (345-346)

Mr. Simson also admits that Exhibit 27-A, by the application of the old or Douglas formula in September, 1907, was put on the same basis as the months that follow. (716)

DEFENDANTS ADJUSTED NET INCOME AND RETURN UPON PROPERTY VALUES FOR THE FOUR MONTHS ENDING DECEMBER 31, 1907.

DEFENDANTS' EXHIBIT Y.

This exhibit offered by the defendants purports to be a statement of income and return upon the value of the property in Arkansas for the four months ending December 31, 1907. It makes no segregation of the earnings and expenses which it assigns to the State of Arkansas, as between intrastate, interstate, freight, passenger, mail and express traffic, and it therefore is of no value in determining the matter at issue—whether or not the intrastate freight and passenger rates are confiscatory.

It is a composite of the Plaintiff's Exhibit 27-A and the Defendants' Exhibits "V," "W" and "X." All of the figures reflecting earnings in this exhibit are drawn from Plaintiff's Exhibit 27-A, with the exception of the freight earnings which are those arrived at in the Defendants' Exhibit "V" after making the adjustments of the assignment to Arkansas of various deductions from, and additions to, gross revenues which have been explained in connection with Exhibit "V," which adjustments had no effect whatever, or, at most only an infinitesimal effect, upon the intrastate revenues in Arkansas. The operating expense figures appearing in Exhibit "Y" are drawn from Exhibit 27-A, with the exception of maintenance of equipment expenses and transportation expenses, which figures are taken from Defendants' Exhibits "W" and "X," and are $58,111 less than the proper amount. As has been explained, the figures in Exhibits "W" and "X" are the result of an adjustment of an error of the auditor of the railroad in applying his old formula in the month of September, 1907, so that in their Exhibit "Y," the defendants adopt the auditor's old formula for the assignment to Arkansas of maintenance of way and structures, traffic and general expenses but reject that formula so far as maintenance of equipment and transportation expenses are concerned. Here we have a hybrid proposition which does not rest firmly upon any one basis, but is a composite of two bases, to neither of which the defendants' witnesses adhered, as was developed when Mr. Simson stated that, considering all of the exhibits offered by the defendants, Exhibit "O" (afterward changed to "O-1"), reflected the facts which they desired to stand upon in this case. (641)

Explanation has previously been made of Exhibits "Q," "R," "S," "T" and "U," all of which are crys-

tallized in Exhibit "V" and Exhibits "W" and "X" have also been explained. Now, Exhibit "Y" is the concrete presentation of the effect of all of these Exhibits, "Q," "R," "S," "T," "U," "V," "W" and "X," and brings all of the calculations, data and erroneous applications set forth in them down to a final showing of return upon all of the business of the railroad within the State of Arkansas—*intrastate, interstate, freight, passenger and mail and express all consolidated*—as determined by the defendants' accountants for these four months. So, when Mr. Simson, the principal accounting witness for defendants, who prepared and introduced these exhibits, testified that they stood on Exhibit "O" (641), he discarded the remaining exhibits—"Q" to "Y," inclusive—and we submit that they should be disregarded and dismissed from consideration by the court.

### Defendants' So-Called Income Account.

### Defendants' Exhibits AA and BB.

As explained by Mr. Simson (628-9), Exhibit AA is made up simply by copying the total expenses, earnings, taxes, etc., in Arkansas, from Plaintiff's Exhibits 20-A, 22 and 23, which earnings, expenses, etc., are those of the year ended June 30, 1913, and which, as we have shown, were actually assigned and allocated to the State of Arkansas by the plaintiff on basis of its formula, Exhibit No. 1, but which exhibits were subdivided by the plaintiff, also, in accordance with the formula as between the intrastate and interstate, freight and passenger and mail and express business. On the pages of the record referred to, there is a reference to an adjustment of a rental item, known as the "Kansas City, Fort Scott & Memphis Railroad—Guarantee Dividend." *This is the item that was eliminated at the suggestion of the court,*

*and the result of such elimination shown in the Plaintiff's Exhibit No.* 28. So therefore, Defendants' Exhibit "AA" is wholly based upon and quotes verbatim figures as to earnings, expenses and other charges which were produced by the plaintiff as one step in the process of determining results of the intrastate freight and passenger business in Arkansas, but the defendants, in filing this exhibit, do not show to the court any such separate results, *contenting themselves with showing the return upon the entire business in Arkansas of every class and character combined,* including both intrastate and interstate, under 3-cent passenger fares, state and interstate, and freight rates, state and interstate.

Exhibit "BB" is similar in nature to Exhibit "AA," but the earnings and expense figures included therein are those assigned to the State of Arkansas under the railroad's old formula and which were used by the railroad simply as a background of comparison to obtain percentage relationships between the old formula and the new, to be used in equating the figures obtained in years prior to 1913 under the old formula to the basis of the new formula. Here again *the defendants have simply shown a figure of return upon the entire business* of the railroad in Arkansas on the basis of the company's old formula. They have included in Exhibit "BB" an adjustment of the expenses of the Memphis terminal which is fully described in Exhibit "G," and by reason thereof added to the expenses in Arkansas, for every character of business combined as determined under the company's old formula, the sum of $72,107.48. It will be observed that no such adjustment was made in connection with Exhibit "AA," which quotes the expenses assigned to Arkansas under the railroad's new formula (Exhibit No. 1), and that there is no controversy

as to the actual assignment of expenses to Arkansas under the new formula.

Just what aid or information to the court these Exhibits "AA" and "BB" could possibly be is not apparent when we consider that the problem to be dealt with is the return upon intrastate freight and passenger business only. These exhibits deal with the return upon the entire business of every character, intrastate, interstate, freight, passenger and mail and express combined, within the state.

Before passing from the discussion of these exhibits, it will be well to call attention to the fact, as shown by testimony of Mr. Hamilton on page 852 of the printed record, that during the year ended June 30, 1913, which is the period covered by these two exhibits, the railroad was charging an intrastate passenger fare of three cents per mile and rates on basis of what has been known as the "Court Tariff" for freight transportation, in Arkansas. The rates sought to be enjoined were a two-cent passenger fare and a basis of freight rates much lower than the "Court Tariff"; so that Defendants' Exhibits "AA" and "BB," even as to the total traffic of every character within the state, overstate the net income and percentage of return upon the value of the property which would have been earned had the railroad been charging the two-cent intrastate passenger fare and the freight rates prescribed by the Arkansas Railroad Commission which were sought to be enjoined.

The whole situation as to these Exhibits "AA" and "BB" is tersely stated by the Witness Hamilton, on pages 851, 852 and 853 of the printed record.

## Qualifications of Witnesses.

Counsel attempted to compare the qualifications of Mr. Simson with Mr. Nay and Mr. Mayer with Mr. Hamilton.

Mr. Nay has had thirty-one years' railroad experience and at the present time, and for some years past, has been and is the chief accounting officer of one of the largest railway systems in the world—the Chicago, Rock Island & Pacific Railway. His experience has brought him into constant touch with all of the activities of a railroad, which must necessarily find their ultimate record in the accounting department, or upon the statistical records kept by carriers. Mr. Nay has not been a railroad accountant alone, although that occupation affords opportunities for the broadest grasp of information pertaining to the details of railroad operation. He has also been a devisor and compiler of railroad operating statistics. His testimony in this case shows an intimate familiarity with all the details of railroad operation.

Counsel attempts to compare the testimony of Mr. Nay, in this case with his testimony in a former case of the St. Louis, Iron Mountain & Southern Railway Company, and severely and very unfairly criticise him in that connection. The case referred to arose several years ago. An imperfect test made during the month of October, 1907, on another railroad was introduced in evidence by the railroad company by which the test had been made. While Mr. Nay was on the stand in that case he was questioned in regard to the value of the test, and testified that he did not believe that the month of October, or any one month, should be taken as representative of any six or twelve months, where you wish to obtain accurate results. That October was not a normal average month because the business in that month was the heavi-

est in the year. When asked, in effect, if the testimony he then gave was consistent with his testimony with regard to the test period in this case, he pointed out the difference, that in this case a period of two continuous average months was taken; that two consecutive months afforded a better test than one month, and that his judgment, at this time, was also influenced to an extent by the similarity of the results shown by the two months and the four months tests made under his direction on the Chicago, Rock Island & Pacific Railway. (328, 329, 330, 371, 372)

Attention was called to a statement made by Mr. Nay in the case referred to, that he thought it would be remarkable if the character of state and interstate tonnage, and all the conditions surrounding it, were the same. He explained that in making the statement he had in mind the difference in the proportions of carload and less than carload, intrastate and interstate freight, and that the question of delays in transit growing out of congestion, which had occurred on the line of the railroad in that case, the resulting lap-overs, and the relative effect thereof on intrastate and interstate freight, was involved. His statement in regard to this was as follows:

> "I am not positive now, because, in order for these percentages to be of value, supposing their condition had been met outside of the lap-overs, and they are correct in every other respect except the lap-overs; in order for them to be of value, considering the lap-overs, it would be necessary not only for the state and interstate to move coincidently, or be delayed coincidently, if there was a congestion, but it would be necessary for them to move coincidently on local and through trains. If traffic that moves on through trains is delayed, it must be delayed in the same proportion as traffic which moves on local trains, etc." (375)

This reference will give the court an idea of the differ-

ence in the conditions that existed in the two cases in which his testimony was taken. He was further asked if he did not state in the former case that it would not be fair to take the last six months of a year to be representative of the whole twelve months, and showed that he was then testifying in regard to the net earnings, that he had so testified and still had the same view, and then pointed out the distinction between using one period for the purpose of determining the gross and net earnings, and the relations thereof, during another period, and of determining the relation between the different classes of traffic by ascertaining operating results in the handling and moving of traffic, and said, while it would be foolish to assume that the earnings of any previous twelve months would be six times what they were in a shorter period, it may be assumed that the relation between the expenses of different classes of traffic would remain substantially the same where the conditions are similar, pointing out very clearly the distinction which counsel seems to have overlooked between the two propositions. His attention was next called to a statement made before the Interstate Commerce Commission, that he thought the net operating revenue for a given month was an index of the entire year. The connection in which the statement was made is shown and explained by Mr. Nay at pages 378-9 of the record. It is not necessary to go into it now further than to state that the matter arose in an application for increased interstate rates before the Interstate Commerce Commission, and Mr. Nay, having furnished the Commission with the earnings of his road for some ten years, was putting into the record some additional compilations, including seven weeks additional, and the question was asked, and the statement made with reference to the effect of the figures contained in his earnings sheet as an index to whether

good times were coming, which was a material question, it having been asserted that business was improving, and that the railroads did not need the increase in rates they were asking for because "times were improving," and Mr. Nay's statement was made from that point of view, and no other.

It is not worth while to pursue the matter further. The court will find, upon reading the evidence referred to, that the statements in Mr. Nay's former testimony were made with reference to particular conditions that did not exist and were not involved in this case, and which do not appear upon the partial extracts from his evidence, or else, that it related to matters in regard to which he had upon further investigation modified his former opinions. At the time the evidence in the former case was taken, he, in common with many railroad men, believed the gross revenue was the best general factor for dividing the common expenses, but when that basis was eliminated by the ruling of the court in the Minnesota and other cases, and it was announced that a use unit must be used, a new line of investigation was adopted by those charged with the duty of investigation, including Mr. Nay. It is manifest that he gave very careful and detailed attention to it and caused the series of tests, about which he testified, to be made, and it is not surprising, or to his discredit as a witness, that he should, and did in the course of the investigation, have occasion to modify his views in regard to some of the questions involved. The whole matter is very well set out in the suggestions of the court, in whose presence the evidence was taken, at page 399 of the record, on objection to the relevancy of the testimony. The extracts used by counsel in questioning Mr. Nay in this connection show how misleading, and calculated to cause misunderstanding and erroneous impressions, is the practice of producing par-

tial extracts from former evidence of a witness in a case of this character.

Mr. Simson was employed in railroad service but eleven years, and his last railroad experience was in 1901, fourteen years before he appeared as a witness in this cause. The record discloses that in all his railroad experience, he had not progressed beyond the position of a chief clerk, a general bookkeeper or traveling accountant, engaged in checking up the affairs of station agents. Counsel refer to his experience in commercial accounting practice, as a member of the staff of Haskins & Sells, and the fact that, as an employee of this concern of public accountants, he has been occasionally engaged in the verification and auditing of railroad accounts. This is the total of his railroad experience. He has never held an executive position, nor one of such a character as would give him an insight into the details of railroad *operation*, such as Mr. Nay has enjoyed and improved as his testimony shows, coupled with the fact that such railroad experience as he has had, terminated fourteen years ago, while Mr. Nay's experience has come continuously down to the present day; and that Mr. Nay's experience and knowledge has been constantly broadening is indicated by his advance in railroad service. Mr. Simson can not be properly compared with Mr. Nay.

Counsel refer to Mr. Hamilton as having had railroad experience of an accounting nature only; this misunderstanding has been due to their lack of familiarity with the character of railroad work embraced in the duties attaching to the positions which Mr. Hamilton has filled in his seventeen years' railroad experience. The facts are that he has been engaged in practically every line of railroad work, and for many years was employed in stations, yards and terminals, where the practical everyday operation of the railroad is carried on. He has been

employed, not only in the operating department, but the traffic department and the accounting department as well. His opportunities for observation of every detail of practical operation have been numerous and have covered a long period of time. His intimate knowledge of these subjects is shown by his familiarity with the minutest details of operation, disclosed by the testimony. Since January, 1912, he has been the personal representative of the operating vice president (now one of the receivers) of the St. Louis & San Francisco Railroad, employed particularly in the investigation of operating conditions and operating results at first hand through daily contact with all branches of the service from the section foreman to the general manager. His duties have been to analyze all of the operations of the railroad, to recommend betterments of such operating conditions and practices to the management, and to present information to the executives of the railroad as to the progress and conduct of the company's business in general and in detail. The careful and minutely detailed way, in which the tests reflected in the exhibits in this case were planned and carried out by him, is evidence of his intimate knowledge of railroad operation. The position he now holds—supervisor of efficiency—reporting directly to the receivers of the railroad, indicates the views of the executive officers of the railroad as to his capacity and knowledge of the economics of railroad operation.

Mr. Mayer, at the time he testified in this case, was an employee of the Oklahoma Corporation Commission, and had had eleven years' railroad experience, beginning as a section laborer on the Burlington Railroad, followed by a few months' service as a freight brakeman, with a return to work as a laborer. He was then employed in minor clerical capacities, finally becoming a clerk in the president's office of the M. K. & T., which

latter employment he refers to as "in an executive capacity." His last experience was in the accounting department of the same railroad, covering, altogether, fourteen months. Counsel speak of his practical railroad experience having been as much or more than that of Mr. Hamilton, and quote him as authority on matters which could only be passed upon by a trained civil engineer or mechanical engineer, although Mayer, on cross-examination, admitted that he had no training as an engineer, and showed by his testimony that he had no knowledge of many important matters connected with the subject on which he was testifying. He has never occupied a position in railroad service which would give him a broad and coherent view of the whole railroad problem, as had the witnesses for the plaintiff. He has never been employed in other than minor capacities, and the record discloses that he had never improved his opportunities to broaden his views even in those minor positions, as is shown by his ignorance of the most elementary railroad matters.

Another witness for the plaintiff was J. A. Frates, general superintendent, having at the time he testified exclusive charge of the operation of 2,700 miles of the St. Louis & San Francisco Railroad, a little more than one-half of that system. He had had thirty years' railroad experience in practically every capacity in the operating department, the last fourteen years of which had been on the railroad of which he is now general superintendent. His intimate knowledge and clear understanding of railroad operating practices and details is apparent throughout all his testimony. He controverted many of the contentions of Mr. Mayer and it is apparent from his testimony that his statements rest upon a thorough knowledge of actual facts and conditions, and not on the con-

jectual or hearsay matter which underlies many of Mr. Mayer's statements.

Mr. Symons, whose testimony was attempted to be overcome by Mr. Simson, is shown not only by his record in railroad service, but by his testimony in this case, to possess very thorough knowledge of all phases of practical railroad operation and intimate knowledge of his own peculiar field—railroad mechanics, not only in itself, but in its relation to all other branches of railroad operation, and that his advice and counsel is sought after by railroad operating officials all over the country. Mr. Simson, whose testimony was offered for the defendants in opposition to that of Mr. Symons, admitted that he had no experience, upon which to base his conclusions, or practical knowledge whatever of the subject.

SOME MATERIAL ERRORS IN DEFENDANTS' ORIGINAL BRIEF.

At page 47 of original brief, counsel for defendants say that the court's statement of the reasons for the extra cost of intrastate over interstate traffic is almost identical with the testimony reviewed by Mr. Justice Hughes in the Minnesota Rate Case (230 U. S., 352, 462-464.)

The testimony in the Minnesota Rate Case, referred to, rested solely upon the expert opinion of railroad operating men. In this case it rests on an actual determination of the facts based on the test conducted in the stations, in the yards, on the trains—in fact, throughout every activity of the railroad, concurrently with its every-day operation in a representative test period; so, it is apparent that the court's findings of an extra cost of intrastate over interstate traffic should not bear the stigma of resting upon testimony similar to that previously rejected by this court.

This question of extra cost is discussed at pages 45-49

of said brief, in which the claim is made that the only extra cost of intrastate over interstate is to be found in the fact that the intrastate incurs two terminal costs to the interstate one. It is also argued that the higher intrastate freight rates compensate for this extra cost, thus attempting to blend two separate and independent matters. The rates cut no figure in ascertaining the cost of transportation, and whether or not they are compensatory can only be determined by ascertaining the cost of conducting the traffic, without any reference to the rates, or revenue, derived therefrom, and subsequently comparing the cost of traffic with the revenues derived from it. Plaintiff pursued the only proper, or possible, method of determining the cost of the various classes of traffic, by ascertaining through tests, in actual operation, the cost of intrastate business, and then deducting such cost from the intrastate earnings, in that way obtaining the resultant net gain or loss. Counsel say the fact that there is some return upon the total business, intrastate and interstate combined, makes the result shown by the plaintiff's exhibits grotesque. This mode of reasoning is a mere juggling of words, and only serves to confuse the issue and becloud the truth.

At page 47 of their brief counsel state that:

> "There are certain statistics in this record approved by the railroad's accountants which effectually dispose of any theory that the net results of the intrastate are not as compensatory as the net results of the interstate."

And the further statement that:

> "These figures were compiled by Mr. Simson and approved by Mr. Hamilton."

In support of this statement, counsel refer to pages 874-876 of the record. The facts in this connection are that, upon cross-examination, Mr. Hamilton stated

that certain figures of average gross revenue per ton mile computed by Mr. Simson had been correctly calculated. This will be found at the pages of the record previously referred to. There was no reference whatever to the subject of operating expenses by the witness and no conclusions as to net gain or loss, simply a statement as to gross revenues per ton mile. How this statement by the witness can be construed as it has been by counsel in the instance mentioned is past our understanding.

Counsel, in criticising the result of the test as reflected in the excess cost of conducting intrastate over interstate traffic, call attention to the fact that the terminal cost per ton of handling intrastate and interstate freight is the same, and draw therefrom the conclusion that there should be no difference except in terminal cost. They overlook the fact that there not only is a double terminal expense on each ton of intrastate freight, growing out of the fact that it has two terminal handlings, as compared with one terminal handling of each ton of interstate freight, but also the further fact that as the haul decreases in length the spread of terminal cost is very much larger per ton mile than it is over the longer hauls. The average haul of intrastate freight in Arkansas is twenty-five miles; of interstate freight, covering only that part of the haul in Arkansas, it is eighty miles, but because of the transstate tonnage there is only one terminal handling for each 140-mile interstate haul. It is apparent at a glance that when you spread two terminal costs of a ton of intrastate freight over twenty-five miles, you get a very material increase over the cost per ton mile obtained in the spread of one terminal cost over an eighty-mile haul of interstate freight. They also assume that the line cost per ton mile is the same for both classes of freight. That is true when carried

on the same train, but counsel overlook the fact that the loading of the local trains is very much lighter than the loading of the through trains; that the local train is a more expensive train per mile to operate than the through train, by reason of having a larger crew, and the fact that the local train requires a longer time on the road to make a given train mileage, and that a very large proportion of the intrastate freight, and a very small proportion of the interstate freight, is carried on local trains.

Counsel for defendants at page 47 of his original brief directs attention to the fact that 85 per cent. of the freight carried on the local trains is interstate and 15 per cent. intrastate, and say that:

> "It is rather difficult to see how the heavier expense of the local train can work out a heavier expense for the intrastate traffic when over 85 per cent. of its load is interstate traffic."

The proportions of freight which go to make up the total loading of the local trains, and which are reflected in the percentages quoted by counsel, have no real bearing upon the question. On page 1 of Exhibit 6, there is set forth separately the net ton miles of revenue freight carried on through trains and on local trains in Arkansas, subdivided in each case between intrastate and interstate. These figures show that of the interstate freight, 36,860,653 ton miles was carried upon through trains and 7,976,402 ton miles upon local trains—or, stated in percentages, 82 per cent. of all the interstate freight was carried upon the less expensive through trains and only 18 per cent. upon the more expensive local trains. The exhibit shows in the same table that of the intrastate freight, 472,506 ton miles were transported upon through trains and 1,343,339 ton miles were transported upon local trains. Expressed in percentages,

the figures show that 74 per cent. of the intrastate freight was transported upon the more expensive local trains and 26 per cent. upon the less expensive through trains. With 74 per cent. of the total intrastate freight and 18 per cent. of the total interstate freight carried upon the more expensive local trains, counsel's contention, as quoted above, ceases to be of any force.

It should be obvious that when the line expenses are divided between intrastate and interstate freight upon the basis of the net ton miles of each class of traffic carried on the through and local trains, respectively, in the manner described in plaintiff's exhibits, there will necessarily be a very material excess of cost per ton mile for intrastate, as compared with interstate business, for line expenses alone, to say nothing of the double terminal cost and the short haul of the intrastate traffic.

The effect of the carrying of this large proportion of state traffic on local freight trains is carried to a final result and is directly reflected in the extra cost of the state over the interstate business, and the statements in the defendants' reply brief to the contrary are in error. It is reflected in the results in this case just as it was reflected in the results obtained by the representatives of the state in the Iron Mountain case.

The same conditions making for the extra cost of transporting intrastate as compared with interstate freight obtain with intrastate and interstate passenger traffic, as the same methods of ascertaining the extra cost of the intrastate over the interstate have been employed as in the case of the freight traffic, except that instead of the distinction between through and local trains plaintiff has segregated the travel in ordinary coaches from that in Pullman cars, as is explained in the exhibit.

At page 72 counsel, in discussing the matter of appor-

tioning values on basis of apportionment of operating expenses, states that:

> "An error, however small, in the assignment of these expenses quickly runs into big figures in their application to the property values."

And makes a hypothetical illustration of a railroad property, valued at $16,000,000 having operating expenses of $100,000, which have been assigned 50 per cent. each to the freight and passenger services. The illustration assumes an error of $1,000 in the apportionment of these expenses, which, if added to the passenger expenses as a matter of correction, would make the passenger percentage of operating expenses 51 per cent. The illustration then points out that this corrected percentage, applied to the valuation of $16,000,000 would throw $160,000 more property value to the passenger side, and that it would require $9,600 of net income from passenger sources to make a return of 6 per cent. upon this additional $160,000 property value.

The fallacy of this illustration is apparent, and it lies in the inconsistent relation of the valuation and operating expense figures assumed. Inasmuch as counsel spoke of a 6 per cent. return, it is evident that the period intended to be taken for the illustration is one year. To assume that the total expenses of a railroad property which was valued at $16,000,000 would be but $100,000 per annum is utterly inconsistent with common knowledge. Exhibit 61, filed in this case, shows the value of the property (by stipulation) to be $18,000,000 in round figures, and in operating this property for a year, the same exhibit shows that operating expenses of over $3,000,000 were incurred. The most elementary knowledge of railroad operation would make it plain that a railroad property sufficiently large to be valued at $16,000,000 could not be operated for an entire year with

an outlay of only $100,000 for operating expenses. Taking counsel's assumed error of $1,000 and substituting $3,000,000 for the hypothetical figure of $100,000 operating expenses, it follows that the percentage of error which would affect the division of property values is thus reduced to *three one-hundredths of one per cent.* When this percentage is applied to the $16,000,000 property value, the amount of property transferred, as in counsel's illustration, to the passenger side, is only $4,800 instead of $160,000, as suggested. To produce a difference of one per cent., as the result of an error, in apportioning expenses on a railroad with a value of $16,000,000 and with operating expenses properly proportioned thereto, namely, $3,000,000, the hypothetical error in distribution of expenses between the freight and passenger services would have to be $30,000 instead of $1,000, as assumed by counsel in their illustration. The fundamental error in the illustration consists in the improper relationship of the operating expense and property value figures quoted as a basis for the illustration.

*As to the error of* $23,000 *in connection with which the hypothetical illustration was made, it can be stated that if worked out to a conclusion in conjunction with the plaintiff's exhibits, it will be found that the* $23,000 *applies, not to freight or passenger alone, but to both, and when worked out to an ultimate conclusion on the plaintiff's basis, makes no difference whatever in the distribution of the property values between those two classes of traffic.*

In this connection, it should be remembered that in the hypothetical illustration used by defendants, the error in operating expenses is all thrown to one side, whereas, the difference of $23,000 referred to is spread over both the freight and passenger business.

At page 73 counsel say, with reference to the matter of equating the expenses of prior periods on basis of 1913 results:

> "It is a self-evident proposition that the assignment to Arkansas as a whole cannot be affected by a redistribution of part of those costs between freight and passenger. The proposition was dealing entirely with the amount of expenses assigned to Arkansas and not their distribution."

This refers directly to the matter of equating the Interstate Commerce Commission accounts, either piecemeal, or in total for each of the four general groups, which is discussed at length on the same page. It is evident that neither counsel nor the accountants for the defendants have understood the equating process. In order to assign expenses in the prior periods, it was necessary either to apply the new formula (Exhibit No. 1) in detail in those prior periods (and why this was impracticable has been elsewhere stated) or to reflect the processes of the new formula in those prior periods by a process of equating 1913 results obtained thereunder. From criticism made by counsel, it is apparent that they have considered but one of the results which the equation was designed to effect, that is, the assignment of expenses to the State of Arkansas. The processes of the new formula, which it was necessary to carry back through an equation, were three in number; the assignment of the expenses to the state, their subdivision between the freight and passenger services, and the adjustment of the company material, or nonrevenue costs, between the freight and passenger services. These three steps were worked out in detail in 1913, and it was necessary, if the new formula was to be properly reflected in the prior periods, that all three processes should be carried back, through an equation. In the figures prepared by the defendants' accountants and discussed on page 73 of

the brief, only one of these processes was worked out, namely, the assignment of expenses to the state.

This is the criticism of the equating method made by the accountants for the defendants, and it was the complete working out of all three processes that practically reversed the results obtained by them, as discussed at page 73 of the brief.

At page 9 counsel say, referring to Plaintiff's Exhibits 27-A and 28, that they were filed to correct mistakes which had occurred in Exhibit 27, which is characterized as the final summary of the plaintiff up to that time.

Counsel seem to have no clear conception of the contents of these exhibits. Neither of them is a final summary. Exhibit 27-A, and its predecessor, 27, covered only the four months of 1907. Exhibit 28 applies to all of the four years and the four months appearing in Exhibit 61, and simply shows the effect of eliminating the rental charge of the Kansas City, Fort Scott & Memphis Railway, which was done at the suggestion of the court. Counsel also refer to the revision of Exhibit 27, which is reflected in Exhibit 27-A, and state that Exhibit 27 needed "reduction to better bases to make it reflect the actual condition of affairs," and then refer to Defendants' Exhibits V, W, X and Y. The fact in connection with this matter is that the accountants for the defendants sought to substitute their preference of bases of division of expenses, for the formula of the railroad, and the reference to this particular matter as an "error" is in itself erroneous. (271-287)

At page 17 counsel, in discussing the division of value of tracks and facilities between freight and passenger, and line and terminal, have assumed that all such divisions were made in the ratio of the amount of mainte-

nance expenses of such facilities charged to each of said classes of service. They overlook the fact, as shown by Plaintiff's Exhibit 18, that the value of many individual facilities was directly allocated to freight or passenger or line or terminal, on account of the exclusive use of such facilities by one of these classes of service.

At page 18 it is stated that the plaintiff has apportioned the "original cost of roadway and structures between the various classes of traffic." It is true that the valuation made by the chief engineer of the railroad reflected the original cost of the property, but it is upon this stipulated value that the final showing made by the plaintiff in Exhibit 61 is based. Attention is further called on this page to the fact that the plaintiff divides certain roadway and structures values on the basis of transportation expenses, instead of using maintenance-of-way expenses for that purpose, as prescribed in the formula. The record shows that subsequently the plaintiff, for comparative purposes made this division on basis of the maintenance-of-way expenses and that the difference in the results obtained was negligible.

At page 19, the testimony of witness Mayer is referred to, in which he claimed that the formula (Exhibit No. 1) is in error in classifying the making up and breaking up of trains as a line expense, and that by reason of charging such expenses to line, intrastate freight traffic is charged with expenses not incurred by it.

The fallacy of this position has been shown by Mr. Hamilton (859-861, 876-877), and Mr. Mayer ultimately was made to admit its fallacy on cross-examination. (693-700)

On this point, see the opinion of the court. (920)

At pages 25 and 26 counsel state that the four months

of 1907 was an unfair period of inquiry, because of the great panic which began in that period, by reason of which, it is claimed that the revenue of the railroad was seriously affected.

By reference to Exhibit 35, however, it appears that the proportion of earnings of these four months, September, October, November and December, 1907, to the total of the fiscal year of which they are a part, is greater than the percentage of the earnings of the same four months of each of the other fiscal years to the total of any such fiscal years involved. That is to say, for the four months of 1907 the earnings were 36.98 per cent. of those for the year, while for 1910 they were 35.75 per cent.; in 1911 they were 36.45 per cent.; in 1912 they were 36.39 per cent.; in 1913 they were 36.21 per cent. and in 1914 they were 35.79 per cent. of the earnings of the year. The earning relations therefore, of the four months of 1907 to the total for the year establishes that those 4 months, as compared with the same four months of the other years were not subnormal as to earnings but actually higher in relation to the annual earnings than were the same months in any one of the five years involved.

At page 29 it is stated that, by rearrangement of the "in transit" freight earnings, or what has been referred to in the recordd as "lap-overs," on the basis indicated in Defendants' Exhibit "U," the Arkansas gross freight earnings in the four months of 1907 would be increased $27,316.22.

Counsel neglected to call attention to Mr. Hamilton's testimony at pages 835 and 836, where he stated that he made a careful investigation of the company's records to determine the facts in connection with this matter, with the result that it was shown that in the four months of 1907 *the intrastate freight in transit amounted to*

*only* $473.13. This omitted testimony *also shows that the intrastate "lap-overs"* (so-called) "wiped themselves out" in the four months' period, as the witness, in the testimony which is quoted on page 29, said they would do.

It is also stated on this and the following page, that Mr. Douglas followed his formula in September and departed from it in the three months following, *which is the reverse of the facts.*

It has been shown in the record that the figures obtained on the basis of the old, or Douglas, formula were used only as a background for equation. This has been explained at length, and further that these *inconsistencies in the application of the Douglas formula in the one month were carefully corrected before the equation was made.*

It is stated on page 30 that Mr. Hamilton did not dispute the propriety of the formula used by Mr. Douglas but the facts are that he disapproved it, and only used it as a background for the equating process, and counsel admit elsewhere that Mr. Hamilton has condemned Mr. Douglas' basis as *academically* unsound.

At page 45 reference is made to the Plaintiff's Exhibit 58, in which taxes, hire of equipment and value of property are averaged for a series of years. Counsel quote Mr. Hamilton as saying (850):

> "That he does not believe in the exhibit prepared by himself."

This is only a partial quotation and is misleading, as by reference to the testimony (849, 850) it will be seen that he produced this exhibit simply to carry the *hypothetical averaging system used by the defendants,*

relating to earnings and operating expenses, to taxes, hire of equipment and property values. He says (850):

> "I wanted to make the averaging process throughout consistent, so I followed it out to the last detail."

And further:

> "I do not believe in the averaging system but on that system this is what it shows when you carry that system into all of the phases of the proposition."

At page 70 counsel say:

> "Mr. Hamilton attempts to defend the engine ton mile, which he admits is brought back through the equating process (from 1913) to the four months of 1907, by showing it differed but little from the revenue train mile."

This is a partial quotation taken from pages 854 and 855 of the record. At page 878, referring to his testimony on pages 854 and 855, Mr. Hamilton shows that the foregoing statement is based upon a complete misunderstanding of the record. Counsel again refers to this same proposition at page 77 of their brief, and again make the same mistake as appears on page 70, referred to.

Mr. Hamilton compiled the actual engine ton miles for the four months of 1907, and found that there was less than 2 per cent. difference between the engine ton mile relations carried back to the four months of 1907 and those actually found to exist in 1907. (878)

It is implied in the discussion of terminal expenses, at page 24 of defendants' reply brief, and perhaps elsewhere, that no part of train terminal expenses is borne by the mail and express service. This assumption is in error, as is apparent from a consideration of the bases prescribed in the formula (Exhibit No. 1, p. 32) and from Exhibit 12, where such expenses are apportioned as be-

tween mail and express and passenger service. It appears from page 3 of Exhibit 12 that the train terminal expenses were apportioned to mail and express upon the basis of the mail and express car foot mile percentage, which is 20.38 per cent. of the passenger train car foot miles. There is not the slightest evidence in the record to sustain the suggestion that a greater percentage of such expenses should have been charged to the mail and express than is charged in Plaintiff's Exhibit 12, prepared in accordance with the provisions of the formula.

It is erroneously contended in defendants' original brief, pages 45 and 46, that the case at bar falls within the following language used in the Minnesota Rate Case:

> "The showing thus made, of the returns from the combined business, makes it entirely clear that the ultimate conclusion must depend upon the certainty of the proof with respect to the segregation of the results of the intrastate operations."

And it is asserted that

> "if the diminution tables were applied to the earnings where a 3-cent passenger rate and the court tariff were in effect that the road was earning at least 7 per cent."

*This statement is without a scintilla of evidence to support it, and is in direct conflict with the unquestioned evidence in the record. The actual receipts from transportation for the four years,* 1910 *to* 1913, *include the earnings under* 2½*-cent passenger fares, state and interstate, for* 17 *months and* 3*-cent passenger fares, state and interstate, for* 31 *months of the* 4 *years involved; and intrastate freight revenues for the* 4 *years under freight rates substantially higher than those prescribed in the Arkansas Commission's standard distance tariff No.* 3.

There is in this the same misleading contention that is urged throughout the defendants' brief, that is—to de-

termine the reasonableness of a 2-cent intrastate passenger fare, upon the combined revenues, state and interstate, received under 2½-cent and 3-cent passenger fares. The unfairness of this contention is so patent that mere statement of the facts is sufficient to condemn it.

There is no similarity between the test involved in the Minnesota Rate Case and the test involved in the case at bar. In the case at bar the value is agreed upon and the expenses are apportioned upon the results of a careful test involving every detail of operation.

DEFENDANTS' COMMENTS ON FINDINGS OF THE TRIAL COURT.

At the conclusion of their brief the counsel point out errors which they contend the court made in its findings based on the evidence.

They first call attention to the statement by the court on page 916 of the record that the average value of the property for the four years, 1910 to 1913, inclusive, under the stipulation was $17,924,441.75, and that the gross earnings in the state for the four years was $16,688,486.86. These figures were taken by the court from the first sheet of Exhibit 61, which is a compilation made from exhibits filed by plaintiff, numbered 22, 24, 25 and 26, and based on the stipulation as to value which appears on pages 906-907 of the record, and it is a correct statement of the average stipulated value for the four years. The statement by the court as to the gross earnings is not based on any stipulation, but is the result of averaging the actual earnings shown in Exhibits 22, 24, 25 and 26, which shows the earnings of each one of those years and is undisputed.

The statement by the court that it was shown by the undisputed evidence that the four years referred to

were normal is absolutely correct, and there is not a scintilla of evidence in the record to the contrary. The further statement and finding on the same page that the months of November and December, 1913, were normal is based on the evidence introduced and on Exhibits 34-41, which have been discussed by us in connection with that subject, and the finding is clearly sustained by the evidence.

Counsel say that the court has not understood Mr. Mayer's evidence. We have already called attention at some length to the evidence of that witness, and are unable to find any particular in which the summing up by the court indicates a misunderstanding of the positions taken by him and his evidence in support of his views. A careful reading of Mr. Mayer's evidence, and particularly his statements on cross-examination, will justify the views expressed by the court in regard to it.

It is stated that the court misapprehended the correction of the terminal costs and line costs as made by the state. A reading of the opinion on pages 925 and 926 shows that the court did not misapprehend the bearing of the testimony in either of the aspects pointed out by counsel. This question has been discussed at some length in this brief and we think the finding of the court as to the effect of the correction is not only sustained by the statements of Mr. Simson himself, which are quoted in the opinion, but by all of the evidence introduced on both sides. On pages 927-928 of the opinion, the court says that the result would not differ materially if the figures of the State's accountants were accepted and applied to the intrastate business, although they are made on the basis of net earnings of the entire system. In commenting on this statement counsel say that the court overlooked the fact that the calculations made on the net intrastate earnings were based on the extra costs

of intrastate freight and passenger business developed by the test made in 1913. In other words, the position of counsel is that the court erred in its findings. We would only add to what has heretofore been said in the discussion of the test that if there is any one fact which is completely demonstrated from the practical operations of the road in handling and transporting freight and passengers it is this fact. The result may not be agreeable to counsel, but it represents actual conditions ascertained and developed from day to day. There can be no question, and we submit that it constitutes the very highest degree of evidence that could be produced upon the question as to the comparative cost of conducting the two classes of business.

Counsel, in referring to a statement at page 930 of the opinion in connection with Exhibit "O," that the Douglas Formula was discarded because found to be erroneous, say on page 92 of their brief:

> "Mr. Hamilton admitted many of these errors and criticized not the Dogulas Formula but the Company's Formula for dividing passenger and freight which was used for comparative purposes.
>
> Mr. Hamilton's criticism may also have run to the Formula for assigning to states, but the evidence is not so understood. The point, however, of this reference is merely to show that the court misapprehended the force of the various exhibits based on the old Formula contrasted with the new formula as he evidently believed, as shown by this quotation, that the old Formula was discarded by everyone, and no value could be attached to it, whereas Mr. Hamilton repeatedly stated that there was little difference between it and the new Formula, and evidently his criticisms which the court had in mind were of the Formula used by Mr. Douglas and the railroad for separating passenger and freight, which was only used for their operating comparisons as stated in Exhibit No. 23."

A perusal of the record will show that the court's

opinion, criticized by counsel in the language quoted, is based upon a sound understanding of the facts as disclosed by the record. In order to clear up this entire matter, which seems to have been thoroughly misunderstood by counsel, it will be well to state just what this whole matter relates to.

Prior to the devising of the Formula filed by the plaintiff as Exhibit No. 1, the railroad, for purposes of its own operating comparisons, and of making approximate reports to State Railroad Commissions, had a rough hewn inexpensive Formula for assigning expenses to states, and between freight and passenger services. This has been referred to both as the "Douglas Formula" and the "Old Formula." Counsel now, on page 92 of their brief, adds a new designation, "The Company's Formula." These three Formulae are one and the same and they have no connection with the Formula filed as Exhibit No. 1, and the use made by the plaintiff of the figures compiled under the "Douglas Formula," the "Old Formula," or, as counsel now term it "The Company's Formula" was, as has been explained carefully in connection with Exhibit No. 23, only as a background of comparison, or equation, in carrying the concrete result of the new Formula, filed as Exhibit No. 1, as it was applied in detail in 1913, back to prior periods. In using the results of applying the Old, or Douglas Formula, for purposes of equation, the railroad's accountants discovered that in one month, 1907, Mr. Douglas—the auditor of the railroad, *who had no connection with the preparation of the data under the new Formula*, (filed as Exhibit 1)—had, through error, departed from the text in applying the Formula known as the Douglas or Old Formula. In order that the equating process might be sound, these errors were corrected and application of this old or Douglas Formula

placed upon a uniform basis throughout all of the periods. This is explained in testimony of Mr. Hamilton, which has been quoted elsewhere.

In the quotation from counsel's brief, statement is made, that "Mr. Hamilton repeatedly stated that there was little difference between it (the Old or Douglas Formula) and the new Formula (Exhibit No. 1) and that it appears his criticisms which the court had in mind were of another Formula used by the railroad for separating passenger and freight." Counsel has patently misunderstood this entire proposition. What he speaks of as two Formulae, one for assigning expenses to states and one for separating expenses between freight and passenger, were both embraced in the process known as the "Douglas Formula," the "Old Formula," and now, as counsel designates it for the first time, the "Company's Formula." That Mr. Hamilton did discard the Old or Douglas Formula except as a background or basis for the equation of expenses of prior years to the basis of the new Formula, Exhibit No. 1, is a fact, as is disclosed by the testimony, and, therefore, counsel's whole criticism of the court in this connection is unfounded. We have deemed it necessary to make this rather lengthy explanation as the statement contained in the defendants' brief is calculated to muddy the waters and be misleading.

At page 93 of counsel's brief, reference is made to the court's findings concerning an alleged error of $23,000 in the Memphis Terminal expense, assigned to Arkansas, as set forth in Defendants' Exhibit "G." Counsel neglects to state, as a reference of the record will disclose, that the effect of this correction was to add the amount stated to Arkansas expenses without any accompanying addition to the revenues assigned to Arkansas. Upon testing this matter out, it was found that the

effect of correcting this difference of $23,000 would be insignificant, just as the court is criticised on page 93 of counsel's brief, for stating it would be, and therefore, although this correction if made would have inured to the benefit of the plaintiff's contentions, it was not made on account of its insignificance in effect upon the ultimate result. (840)

On this same page of the brief, counsel refers to Defendants' Exhibits "V," "W" and "X," and makes the statement that "they show errors" to such an extent that the return in the four months of 1907 would be increased to 6.53 per cent.

The court's attention is directed to the discussion of these particular exhibits at pages 225-32, *supra,* and to the quotations from the record in connection therewith, in which it is shown that the matters covered by these exhibits were not errors, but differences of opinion between the state's accountants and the railroad's auditor, as to how certain adjustments of revenue should be made and certain divisions of operating expenses applied.

Exhibit "V" deals solely with revenues for the four months of 1907. In the testimony of Mr. Hamilton (836-840) which is uncontradicted, it is shown that the adjustments of revenue set forth in Exhibit "V" have relation only to the interstate traffic and do not in any way affect the intrastate traffic.

Exhibits "W" and "X" deal entirely with the apportionment of operating expenses to the State of Arkansas, in the four months of 1907, under the Old or Douglas Formula. That all of these matters have been corrected and those corrections reflected in the Plaintiff's Exhibit 27-A is admitted by Mr. Simson at page 716 of the record.

It is apparent, therefore, that after the plaintiff had

filed its Exhibit 27-A, none of these Exhibits, V, W and X, or Exhibit Y, in which they are summarized, had any bearing whatever upon the earnings, expenses, or net return upon the *intrastate* business either freight or passenger in Arkansas. Further confirmation of this is found in the uncontradicted testimony of Mr. Hamilton, which is referred to or quoted (*supra*, 231-2), in connection with the discussion of Defendants' Exhibits Q, R, S, T, U, V, W and X. *The percentages of return quoted by counsel in this connection, apply to the entire business in the State of Arkansas, freight, passenger, intrastate, interstate and mail and express combined.*

These alleged errors on the part of the court are embodied in pages 90 to 93 of defendants' brief. They are either misleading or trivial. None of them rest on any solid foundation, and we respectfully submit that the findings of the court in the particulars referred to and in the result arrived at are sustained by the evidence.

### Defendants' Comments on Expert Testimony.

Counsel assume that the case made by plaintiff rests upon expert opinion. That is not the fact. The proof rests upon the formula for dividing operating expenses, charges etc., which has been filed as Exhibit No. 1 in this case. This formula does not need expert opinion to support it, but it does require an intimate knowledge of operating conditions in modern American railway practice. In support of the formula no opinion evidence has, in reality, been used, except the opinion of Mr. Symons in regard to the division of equipment repairs. Reasons in support of it, resting upon a knowledge of operating facts have been given by men who had such knowledge intimately and at first hand. A large number of expert railroad men, expert in the sense of experience in every branch of railroad service, collaborated in the

preparation of this formula, the names and official capacities of these men are listed in the formula.

In previous rate cases, a large retinue of railroad operating witnesses were brought to testify as to their opinions and judgment of the extra costs of conducting intrastate traffic over interstate, and it was this class of testimony that the court, in the Minnesota Rate Cases, had in mind when it held that the carriers proof should rest on an analysis of the facts rather than upon expert opinion. Such an analysis and investigation in minute detail has been made in this case. It is upon the facts so developed that the proof rests, and not upon expert opinion as to the aggregate results of the conduct of any branch of the service. The formula itself is the evidence of the views of the men by whom it was devised and prepared, and, in introducing it plaintiff brought into the case the aggregate knowledge and experience of those men, whose sole purpose in its preparation was to determine what facts would develop the cost of conducting the various classes of traffic, and to devise methods whereby those facts could be ascertained. Their work was done without any knowledge as to the effect it would have in determining the application of rates on any railroad. They dealt with principles only.

### All Errors In Assignment of Operating Expenses to Arkansas Eliminated.

In the careful examination made by the accounting representatives of the state, they found some errors in the assignment of operating expenses to Arkansas affecting some of the periods involved, and some errors in the apportionment of interstate revenues to the State of Arkansas. All of these errors, so far as they in the slightest degree affect the return realized by the plaintiff upon the value of its property devoted to to the in-

trastate freight and passenger traffic have been eliminated in the statistics, with one single exception, and that is the error covered by the Defendants' Exhibit G.

The error there disclosed is not applicable to the fiscal year ending June 30, 1913, and was corrected for the four months of 1907. (840) This error relates to transportation expenses only, and in the equation by which the old formula was adjusted to the new 110.59 per cent. of the freight transportation expenses apportioned under the old formula was assigned under the new formula when the percentage should have been 105.22 per cent.; and the proportion of the passenger transportation expenses assigned was 89.32 per cent., when it should have been 85.38 per cent. These are the errors to which attention was called in Defendants' Exhibit G, and the percentages above stated are those shown in this exhibit of defendants, and the accuracy of which was accepted by the plaintiff.

These percentages affect the four months of 1907 and the fiscal years ending June 30, 1910, 1911 and 1912.

In applying the correct percentages in the same manner as the original percentages were applied in the four months of 1907, develops an excess of total freight expenses resulting from the use of the erroneous percentages of $16,977.60, and an excess passenger expense of $6,102.72, or a total excess charge to expenses of $23,080.62. The effect of this overcharge in the total expenses on the intrastate freight and passenger business was worked out by Mr. Hamilton, and his evidence in respect thereto is as follows (840):

> "Taking the change Mr. Simson makes and his reduction of Arkansas operating expenses, $23,080.62, and working that out throughout all the calculations that we have made in our Exhibit 27-A, I find that in so far as the intrastate freight and passenger are concerned the gross earnings shown on that

exhibit still leaves us with insufficient money to pay operating expenses before we come to taxes by $807.23."

The net effect of the change was to reduce the intrastate freight expenses $2,314.09, the intrastate passenger expense $2,373.19 and the total intrastate expense $4,687.28. Carrying these intrastate freight and passenger expense deductions to a balance available for return for the four months ending December 31, 1907, as shown in Exhibit 61, page 6, it results in reducing the deficit for the intrastate freight from $9,308.59 to $6,994.50, and the intrastate passenger deficit from $4,630.31 to $2,257.12, and for the total intrastate business from $13,938.90 to $9,251.62.

The years ending June 30, 1910, 1911 and 1912 are affected in the same manner as are the four months of 1907. Reference is simply made to this fact by Mr. Simson in giving his evidence in support of Exhibit G (611-12), but no computation was made showing the effect of correcting this error. It was thought at the time the correction of this error as to the last four months of the year 1907 was sufficient to demonstrate the want of importance as to all of the other periods involved. However, in order that this court may have the benefit of the application of the correct percentage relations for all of the years affected, we have had computations made correcting such error for the fiscal years ending June 30, 1910, 1911, and 1912. These computations have been made from Exhibits 24, 25 and 26, and the effects on the balance available for a return after making such corrections shown on pages 3, 4, 5 and 6 of Exhibit 61 are as follows:

YEAR ENDING JUNE 30, 1912.

| | Intrastate | | |
|---|---|---|---|
| | Freight | Passenger | Total |
| Balance available as return (Exh. 61, page 3) (Deficit) | $27,084.23 | $9,870.22 | $36,954.45 |
| Reduction of expenses, giving effect to corrected equating percentages, shown in Def. Exh. G | 6,077.61 | 5,850.23 | 11,927.84 |
| Balance as corrected (Deficit) | $21,006.62 | $4,019.99 | $25,026.61 |

YEAR ENDING JUNE 30, 1911.

| | | | |
|---|---|---|---|
| Balance available as return (Exh. 61, page 4) (Deficit) | $33,316.23 | (Surplus) $17,888.18 | $15,428.05 |
| Percentage of return (Exh. 61, page 4) | None | 1.26% | None |
| Reduction of expenses, giving effect to corrected equating percentages, shown in Def. Exh. G | 6,383.93 | 5,823.39 | 12,207.32 |
| Balance as corrected | $26,932.30 | (Surplus) $23,711.57 | $ 3,220.73 |
| Percentage of return as corrected | None | 1.67% | None |

YEAR ENDING JUNE 30, 1910.

| | | | |
|---|---|---|---|
| Balance available as return (Exh. 61, page 5) (Deficit) | (Surplus) $ 4,742.10 | $44,195.78 | $39,453.68 |
| Percentage of return (Exh. 61, page 5) | 0.32% | None | None |
| Reduction of expenses, giving effect to corrected equating percentages, shown in Def. Exh. G | 5,595.17 | 6,008.79 | 11,603.96 |
| Balance as corrected (Deficit) | (Surplus) $10,337.27 | $38,186.99 | $27,849.72 |
| Percentage of return as corrected | 0.70% | None | None |

The corrections here made are not reflected in the discussion under the title "Return upon the agreed and other values upon the various bases for the different years involved." It can be readily seen, however, that if considered the conclusion as to confiscation would not be affected.

## Return Upon the Agreed and Other Values Upon the Various Bases for the Different Years Involved.

### Exhibits 22, 24, 25, 26, 27-A, 51 and 61.

There is shown in Exhibits 22, 24, 25, 26 and 27-A the rate of return upon the value of the property as computed by the chief engineer of the Railroad Company,

on the basis of the actual revenues received under the rates in force; and also the return on the value of the property devoted to the intrastate passenger business, on the basis of 2c per passenger per mile for all intrastate transportation. There is also applied the Arkansas Commission's freight rates to the year ending June 30, 1913, but in the other years the return as shown is upon the freight rates actually in force, which were higher, except for the four months of 1907, than the Commission's schedule of freight rates.

There is also included in the expenses charged in Exhibits 22, 24, 25, 26 and 27-A the Kansas City, Ft. Scott and Memphis rental charge, which was eliminated at the suggestion of the court and excluded from Exhibit No. 61.

Exhibit No. 61 shows the return upon the stipulated value of the property, but in computing such return the intrastate freight revenues are reduced for the year ending June 30, 1913, to the basis of the Arkansas schedule, standard distance tariff No. 3. For the four years ending June 30, 1910, to 1913, inclusive, the intrastate passenger revenues are reduced to a 2c passenger fare basis. That is to say, they are computed on the basis that every intrastate passenger paid for each mile he traveled in the state 2c. Exhibit No. 61 is printed as appendix No. 8, and appears at pages 340 to 346.

On sheet No. 1, page 340, there is shown the revenues and expenses summarized for the four years ending June 30, 1910, 1911, 1912 and 1913. At the bottom of sheet No. 1 is shown the average of the four years, compiled at the request of the court to represent an average year of the four.

This is followed by separate sheets, in which there is stated the earnings, expenses, taxes, rentals, hire of

equipment and return upon the value of the property for the years ending June 30, 1910, to 1913, inclusive, and for the four months ending December 31, 1907. The returns on the interstate and intrastate passenger business for an average year of the four years ending June 30, 1913, as shown in this exhibit, is referred to in the opinion of the trial court at pages 926-7 of the record. (222 Fed., 547.) The earnings and expenses of the intrastate freight and passenger business there quoted are drawn directly from Exhibit No. 61. It will be seen by reference to the figures in the court's opinion that the court added back to the average revenues for one year one-fourth of the diminution in revenues which would have been suffered by the plaintiff had the 2c passenger fare statute been in effect. The court, also, under the caption "Operating Expenses," on page 926 of the record, includes, in addition to the operating expenses for an average year of the four shown on the first page of Exhibit 61, the taxes, rentals and hire of equipment.

The returns from the state and interstate business shown in Exhibit No. 61 are not on a comparable basis. This is of great importance in so far as it relates to the passenger traffic. In this exhibit the intrastate passenger revenues are shown as computed on the basis of 2c per mile for all of the periods, while those shown for the interstate are the actual earnings on the basis of the fares collected, which were 2c for the four months of 1907; 2½c for the fiscal year ending June 30, 1910, and from June 30, 1910, to November 26, 1910, and 3c from November 27, 1910, to June 30, 1913.

In addition to this, there is credited as a return from the interstate freight and passenger business a rental credit representing the tolls collected from other carriers for the privilege of being permitted to haul their

traffic over the Memphis bridge, one-half of which is credited to the interstate freight and passenger business of Arkansas. This revenue accrued to the plaintiff by virtue of its ownership of stock and control of the properties of the Kansas City, Ft. Scott and Memphis Railway Company, and by virtue of the ownership by the Kansas City, Ft. Scott and Memphis Railway Company of the stock of the Kansas City & Memphis Railway & Bridge Company. These revenues are, therefore, earnings of the Kansas City & Memphis Railway & Bridge Company from a source wholly independent of the transportation of freight or passengers by the plaintiff, state or interstate, in the State of Arkansas. The bridge tolls collected from other railway companies for the privilege of hauling their traffic over the Memphis Bridge is under a tariff approved by the Secretary of War, and wholly independent of and separate from the earnings accruing under the passenger fares and freight rates, state and interstate, in the State of Arkansas. To make the return from the intrastate and interstate business as shown in Exhibit No. 61, and in all of the other exhibits, comparable, the credit on account of the Memphis Bridge rentals should be eliminated; and so far as Exhibit 61 is concerned the computation should be made for the intrastate passenger business upon the basis of the actual earnings, or the interstate passenger revenue should be reduced to the basis of 2c per mile.

*Applying the passenger revenues realized by the plaintiff under the* 2½ *and* 3c *intrastate passenger fares, the average return for the four years,* 1910 *to* 1913, *inclusive, upon the stipulated value of the property devoted to the intrastate passenger business for the four years,* 1910 *to* 1913, *inclusive, is* 5.70 *per cent.; whereas the average for the four years on the interstate side, elimi-*

*nating the credit accruing to the St. Louis & San Francisco Railroad from the Memphis Bridge for its use by other companies in hauling traffic over same, is* 6.92 *per cent.*

In addition to the above, we have computed the rate of return from the intrastate freight and passenger business, apportioning common line maintenance-of-way expenses between freight and passenger on the direct charge basis used by the Interstate Commerce Commission in the Western Passenger Fares Case, *supra* (37 I. C. C., 1), and apportioning maintenance-of-equipment expenses between line and terminal on the basis contended for by the defendants, to wit,—the Simson percentages. Statement in detail of this computation is printed as Appendix No. 10, sheet 3 under the following caption: "Return using direct charge basis for apportioning common line maintenance-of-way expenses between freight and passenger, and defendants' basis for apportioning maintenance-of-equipment expenses between line and terminal," and appearing at page 356.

In making this computation we have used the earnings as they are applied in Exhibit No. 61, with the result that there was a net revenue applicable to a return upon the value of the property assigned to the intrastate freight traffic, for the year ending June 30, 1913, of $17,772.49,—sufficient to yield a return of 1.34 per cent. upon the agreed value of the property assigned to the intrastate freight business.

For the year ending June 30, 1912, there was an operating deficit of $11,852.36 from the intrastate freight business; and for the year ending June 30, 1911, there was an operating deficit of $16,695.81 from the intrastate freight business.

For the year ending June 30, 1910, there was net

operating revenue of $19,672.75 from the intrastate freight business, or sufficient to yield a return upon the agreed value of the property assigned to the intrastate freight traffic of 1.45 per cent.

For the four years combined there was a net operating revenue from the intrastate freight business of $8,897.07, —sufficient to yield a return upon the agreed value of the property devoted to the intrastate freight business of 0.16 per cent.

For an average year of the four years the net operating intrastate freight revenue was $2,224.27, sufficient to yield a return upon the agreed value of the property assigned to the intrastate freight traffic of 0.16 per cent.

For the four months ending December 31, 1907, when the Arkansas Commission's standard distance tariff was in force, there was a net operating deficit of $3,231.37 from the intrastate freight business.

On the passenger side, for the year ending June 30, 1913, there was a net operating deficit from the intrastate passenger traffic of $22,758.92. For the year ending June 30, 1912, there was a net operating income of $1,966.58, sufficient to yield a return of 0.13 per cent. upon the agreed value assigned to the intrastate passenger business.

For the year ending June 30, 1911, there was a net operating income of $29,680.27, sufficient to yield a return of 2.08 per cent. upon the agreed value of the property devoted to the intrastate passenger traffic.

For the year ending June 30, 1910, there was an operating deficit of $31,108.76, from the intrastate passenger traffic.

For the four years combined there was a net operat-

ing deficit of $22,220.83; and for an average year of the four years there was a net operating deficit of $5,555.21.

For the four months ending December 31, 1907, there was a net operating income of $590.69, sufficient to yield a return of 0.11 per cent. upon the agreed value of the property assigned to the intrastate passenger traffic.

Combining the intrastate freight and passenger returns, we find that for the year ending June 30, 1913, there was an operating deficit of $4,986.43; that for the year ending June 30, 1912, there was an operating deficit of $9,885.78; that for the year ending June 30, 1911, there was a net operating income applicable to a return on the value of the property of $12,984.46, sufficient to yield a return on the agreed value of the property assigned to the state traffic of 0.44 per cent.

For the year ending June 30, 1910, there was an operating deficit of $11,436.01; and for the four years combined there was a net operating deficit of $13,323.76; for an average year of the four years there was a net operating deficit of $3,330.94 and for the four months ending December 31, 1907, there was an operating deficit of $2,640.68.

*We again call the court's attention to the fact that all of the defendants' exhibits are based on combined state and interstate traffic, and include revenues earned under 2½c passenger fares, state and interstate, for* 17 *months of the four years involved, and revenues earned under 3c passenger fares, state and interstate, for* 31 *months of the four years; and intrastate freight revenues for the four years under freight rates substantially* higher than those prescribed in the Arkansas Commission's standard distance tariff No. 3.

The defendants' exhibits, therefore, give no information whatever as to the rate of return that was or might

be earned under a 2c passenger fare, or under the Arkansas Commission's schedule of freight rates. *They destroyed the possiblity of a comparison for the four months ending December* 31, 1907, *by importing into those months a substantial amount of the earnings in the four-year period under the higher intrastate passenger fares and freight rates.*

It is also apparent from an examination of appendix 10, sheet 3, page 356, that the return here stated is not materially affected if line maintenance-of-way expenses be divided between freight and passenger on the direct charge basis employed by the Interstate Commerce Commission and equipment maintenance expenses divided between line and terminal upon the basis of the percentages urged by the defendants and testified to by Mr. Simson.

AGREED VALUE OF PROPERTY ASSIGNABLE TO THE INTRASTATE FREIGHT AND PASSENGER TRAFFIC COMPARED WITH VALUE ON WHICH THE ACTUAL NET INCOME WAS EQUAL TO A 6 PER CENT. AND 7 PER CENT. RETURN, FOR THE YEARS ENDING JUNE 30, 1910, 1911, 1912 AND 1913, AND FOR THE FOUR MONTHS ENDING DECEMBER 31, 1907.

We have compiled and printed as appendix No. 11, page 357, for the information of the court, a statement under the above title. The values used in this computation are those stipulated, and the apportionments between freight and passenger and line and terminal are those made in the plaintiff's exhibits, and carried forward to Exhibit 61. By reference to this appendix, it will be observed that:

The net income from the intrastate freight traffic for the year ending June 30, 1913, was $4,517.64, sufficient to earn a 6 per cent. return upon property of the value

of $75,294; or a 7 per cent. return upon property of the value of $64,537.71. That that part of the agreed value assigned to the intrastate freight traffic for the year ending June 30, 1913, was $1,444,061, or $1,368,767 in excess of the value upon which plaintiff earned a 6 per cent. return, and $1,379,523.29 in excess of that upon which it earned a 7 per cent. return.

That for the year ending June 30, 1913, there was a deficit on the intrastate passenger traffic of $35,332.72, and the assignable proportion of the agreed value of the property devoted to the intrastate passenger business for that year was $2,006,483. Plaintiff received no return whatever upon any part of this value for the year ending June 30, 1913.

For the year ending June 30, 1912, there was a net operating deficit from the intrastate freight traffic of $27,084.23, and the value of the property employed in conducting the intrastate freight business for that year was $1,669,763. Plaintiff received no return whatever on any part of this value.

For the year ending June 30, 1912, there was a net operating deficit from the intrastate passenger traffic of $9,870.22; and the value of the property employed in conducting the intrastate passenger traffic was $1,506,942, upon no part of which did plaintiff receive any return whatever.

In the year ending June 30, 1911, there was a net operating deficit from the intrastate freight traffic of $33,316.23, and the value of the property employed in that year in conducting the intrastate freight business was $1,688.797. Plaintiff received no return whatever on any part of this value for said year.

In the year ending June 30, 1911, there was a net operating income from the intrastate passenger traf-

fic of $17,888.18, sufficient to yield a 6 per cent. return on property of the value of $298,136.33, or a 7 per cent. return upon property of the value of $255,545.43. The value of the property employed in conducting the intrastate passenger business in that year was $1,419,787, or $1,121,650.67 in excess of the value upon which plaintiff earned a 6 per cent. return, and $1,164,241.57 in excess of that on which it earned a 7 per cent. return.

In the year ending June 30, 1910, there was a net operating revenue from the intrastate freight traffic of $4,742.10, sufficient to yield a return of 6 per cent. upon property of the value of $79,035, or a return of 7 per cent. on property of the value of $67,744.29. The agreed value of the property assigned to the intrastate freight traffic in that year was $1,472,150. Computing a return on a 6 per cent. basis, plaintiff received no return on the value of its property employed in the intrastate freight business, in the year 1910 amounting to $1,393,115; and if the return be computed on a 7 per cent. basis amounting to $1,404,405.71.

For the year ending June 30, 1910, there was an operating deficit from the intrastate passenger business of $44,195.78, and the value of the property employed in such traffic in that year was $1,459,701, upon no part of which did plaintiff receive any return in said year.

For the 4 months ending December 31, 1907, there was net operating deficit from the intrastate freight traffic of $9,308.59, and the value of the property employed in conducting the intrastate freight traffic in that period was $1,598,022, on no part of which did plaintiff receive any return.

For the 4 months ending December 31, 1907, there was a net operating deficit from the intrastate passen-

ger business of $4,630.31, and the value of plaintiff's property employed in conducting such intrastate passenger traffic in that period was $1,534,995.

A similar comparison is made in Appendix 10, sheet 1, page 354, with the expenses adjusted as between line and terminal on the basis of the Simson percentages as they appear in Defendants' Exhibit F, and as between freight and passenger by using the so-called direct charge basis of the Interstate Commerce Commission for the apportionment of line maintenance of way expenses, instead of the locomotive ton mile basis, and also by adjusting the equipment values on the basis of the Simson line and terminal percentages. We will not consider this exhibit in detail, but by reference thereto it will be found that there is no material difference between the results there shown and those shown in Appendix 10.

NET INCOME FROM INTRASTATE FREIGHT AND PASSENGER TRAFFIC NECESSARY TO PAY A RETURN OF 6 PER CENT. AND 7 PER CENT. ON VALUE OF PROPERTY EMPLOYED IN INTRASTATE FREIGHT AND PASSENGER BUSINESS, COMPARED WITH NET INCOME EARNED ON THE BASIS APPLIED IN EXHIBIT 61, FOR THE YEARS ENDING JUNE 30, 1910, TO 1913, INCLUSIVE, AND FOR FOUR MONTHS ENDING DECEMBER 31, 1907.

We have prepared for the further information of the court, and printed as Appendix No. 12, page 358, statement showing the value of the property assignable to the intrastate freight and passenger traffic, taken from Exhibit 61, and what the net income should be on these values to yield a 6 per cent. and 7 per cent. return respectively, and we have compared the same with the net income shown in Exhibit 61, and have shown by this comparison the difference between

the actual net income as applied in Exhibit 61, and the net income plaintiff would have earned upon a 6 per cent. and 7 per cent. basis respectively.

Without going through the details of this exhibit, it will be observed that in the year 1913 the plaintiff earned upon the value of the property devoted to the intrastate freight traffic $82,126.02 less than a 6 per cent. return, and $96,566.63 less than a 7 per cent. return; and upon the value of its property devoted to its intrastate passenger traffic, $155,721.70 less than a 6 per cent. return, and $175,786.53 less than a 7 per cent. return; and that upon the combined value of its property employed in conducting the intrastate freight and passenger traffic it earned $237,847.72 less than a 6 per cent. return and $272,353.16 less than a 7 per cent. return.

That in the year ending June 30, 1912, plaintiff earned upon the value of its property devoted to the intrastate freight business $127,270.01 less than a 6 per cent. return, and $143,967.64 less than a 7 per cent. return; that upon the value of its property devoted to its intrastate passenger traffic it earned $100,286.74 less than a 6 per cent. return and $115,356.16 less than a 7 per cent. return; and that upon the value of its property employed in conducting its combined intrastate freight and passenger traffic it earned $227,556.75 less than a 6 per cent. return and $259,323.80 less than a 7 per cent. return.

That in the year ending June 30, 1911, plaintiff earned upon the value of its property devoted to the intrastate freight business $134,644.05 less than a 6 per cent. return, and $151,532.02 less than a 7 per cent. return; that upon the value of its property devoted to its intrastate passenger business it earned $67,299.04 less than a 6 per cent. return and $81,496.91 less than a 7

per cent. return; and that on the value of its property employed in conducting its combined intrastate freight and passenger traffic it earned $201,943.09 less than a 6 per cent. return and $233,028.93 less than a 7 per cent. return.

That in the year ending June 30, 1910, plaintiff earned upon the value of its property devoted to its intrastate freight traffic $83,586.90 less than a 6 per cent. return and $98,308.40 less than a 7 per cent. return; that upon the value of its property devoted to the intrastate passenger business it earned $131,777.84 less than a 6 per cent. return and $146,374.85 less than a 7 per cent. return; and that on the value of its property employed in conducting the combined intrastate freight and passenger business it earned $215,364.74 less than a 6 per cent. return and $244,683.25 less than a 7 per cent. return.

That in the four months ending December 31, 1907, plaintiff earned upon the value of its property devoted to its intrastate freight business $41,269.03 less than a 6 per cent. return and $46,595.77 less than a 7 per cent. return; that upon the value of its property devoted to the intrastate passenger business it earned $35,330.21 less than a 6 per cent. return and $40,446.86 less than a 7 per cent. return; and that on the value of its property employed in conducting the combined intrastate freight and passenger business it earned $76,599.24 less than a 6 per cent. return and $87,042.63 less than a 7 per cent. return.

A similar comparison is made in Appendix 10, sheet 2, page 355 with the expenses adjusted as between line and terminal on the basis of the Simson percentages as they appear in Defendants' Exhibit F, and as between freight and passenger by using the so-called direct-charge basis

of the Interstate Commerce Commission for the apportionment of line maintenance of way expenses, instead of the locomotive ton mile basis, and also by adjusting the equipment values on the basis of the Simson line and terminal percentages. We will not consider this exhibit in detail, but by reference thereto it will be found that there is no material difference between the results there shown and those shown in Appendix 12.

It will be observed from a consideration of Appendix No. 11 that there was employed by plaintiff in each of the periods involved in the conduct of its intrastate freight and passenger business property of enormous values upon which no return whatever was earned, and from Appendix No. 12 that plaintiff received in the four years and four months involved $959,311.54 less than a 6 per cent. return upon the value of its property devoted to the combined intrastate freight and passenger business, and $1,096,431.77 less than a 7 per cent. return on the intrastate freight and passenger business.

We have used for the purpose of these computations 6 per cent. and 7 per cent. respectively, while the trial court found that under the peculiar conditions existing in Arkansas that 7½ per cent. would be a reasonable return for the railway company to earn upon the value of its property devoted to the intrastate business. (927) The rate of return which the trial court found to be reasonable, that is, 7½ per cent., is not challenged by the defendants either in their assignment of errors or in their briefs. The percentages used, therefore, are less favorable to the plaintiff than those found by the trial court.

## In Conclusion.

Plaintiff submitted to the trial court the result of an adequate test for a normal period, and applied the cost relations so found in the test period to the four years June 30, 1910, to June 30, 1913, and to the last four months of the calendar year 1907. The investigation was exhaustive; the period normal, and the evidence convincing. The trial court found, upon adequate and satisfactory evidence, every issue in favor of the plaintiff and particularly that the revenues from the intrastate freight and passenger traffic for each and all of the years involved were wholly insufficient to pay necessary operating expenses, taxes, etc., and yield a fair return upon the agreed value of the property employed in the conduct of the intrastate freight and passenger business, and as a result thereof that the Arkansas two-cent passenger fare statute and the Railroad Commission's freight tariff were both confiscatory, violative of the Fourteenth Amendment to the Federal Constitution, and void.

We submit that each and every finding of the trial court is abundantly supported by the evidence, and that its judgment should be affirmed.

Respectfully submitted,

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W. F. Evans,
*Of Counsel.*

January 5, 1917.

# APPENDIX NO. 1.

## EXHIBIT NO. 4.

METHOD OF APPORTIONMENT OF REVENUE TO ARKANSAS AND TO FREIGHT AND PASSENGER INTRASTATE, INTERSTATE, AND MAIL AND EXPRESS TRAFFIC.

*Freight Revenue.*

INTRASTATE FREIGHT REVENUE earned in Arkansas as set forth in Exhibit No. 22, was taken from the records compiled by the railroad in the ordinary keeping of its accounts, with this exception, that while the railroad in preparing the intrastate revenue figures formerly reported to the State Railroad Commission had made an arbitrary adjustment of its gross intrastate revenue in Arkansas on account of undercharge collections, overcharge payments, switching absorptions and kindred items, in preparing the figures shown as intrastate freight revenue in Exhibit No. 22 filed in this case, covering the year ended June 30, 1913, all such adjustments were analyzed and actually applied against the gross earnings covering the actual road haul to which they attached. The arbitrary adjustments, formerly made by the railroad, of overcharges, switching absorptions, undercharges and kindred items, were upon basis of a road mileage prorate (between States) for the railroad as a whole, and a subsequent division of such assignments to states between intrastate and interstate on the basis of the gross intrastate and interstate, directly located, revenues within each state. In the year ended June 30, 1913, the application of this former method, assigned to the State of Arkansas (as shown in the company's regular report to the State Railroad

Commission), intrastate freight revenue amounting to $256,195.32. The reworking of the intrastate freight revenues for the year ended June 30, 1913, on basis of the actual allocation provided for in the formula (Exhibit No. 1) and as hereinbefore explained in detail, resulted in an assignment to Arkansas for the year ended June 30, 1913, of intrastate freight revenue amounting to $259,241.05. The variation in the net result of the two methods of assignment being but a trifle over one per cent.

It was felt that this showing justified the railroad in using, in the preparation, Exhibits Nos. 24, 25, 26, 27, filed in this case, and covering the years ended June 30, 1910, 1911 and 1912, and the four months ended December 31, 1907, the figures representing intrastate freight revenue worked up on its usual basis and reported to the State Railroad Commission without the expenditure of the great amount of time and labor necessary to rework these figures on basis of the formula. In any event, it must be conceded that the change in the revenue figures originally reported to the State Railroad Commission, which would have been brought about by the actual allocation of adjustment items previously referred to, was so small that it would have had no appreciable effect upon the ultimate showing as to the return earned upon the value of the property, in the years prior to that ended June 30, 1913.

The apportionment of INTERSTATE FREIGHT REVENUE assigned to Arkansas for each of the periods shown in Exhibits Nos. 22, 24, 25, 26, 27, was made in the following manner:

For the year ended June 30, 1913, the gross freight revenue accruing to the St. Louis & San Francisco Railroad for the haul of traffic between each station in Arkansas and each station on its line in other states, was tabu-

lated separately, as was also the gross freight revenue accruing to the railroad for its entire haul, between each pair of stations on its line, of traffic which passed entirely through Arkansas *en route,* these tabulations being made from the original revenue records of the railroad. An actual analysis was made of all adjustments of freight revenue, such as overcharges, switching absorptions, undercharges and kindred items, and the results of this analysis, located by separate road hauls between each pair of stations, were deducted from or added to the gross revenues previously set up between each pair of stations as described above, the result being a properly adjusted revenue between each pair of stations for each interstate and transstate separate haul of traffic passing into, out of or through Arkansas. Having so tabulated and adjusted the earnings between each pair of stations, assignment to Arkansas of the total interstate revenue for each separate haul, was made upon the following basis:

Proceeding on the assumption, as indicated by the principle laid down in the formula filed as Exhibit No. 1, that it costs the same per ton for a given terminal or station handling of a ton of intrastate freight, that it does for such handling of a ton of interstate freight, and, further, that it costs the same for the haulage of a ton mile of intrastate freight that it does for a ton mile of interstate freight, and the further assumption, as indicated by the formula, that an allowance of revenue should be made to the states furnishing terminal service to compensate for the cost of such service, and having, in a division of operating expenses, as described in other exhibits filed in the case, determined the cost per ton for terminal service in Arkansas, and the cost per ton mile for line, or haulage, service in Arkansas, of all freight traffic, and the relation of the terminal cost per

ton to the line or haulage cost per ton mile, the terminal cost per ton was reduced to the basis of a cost per ton mile. That is to say, an apportionment of operating expenses based on the test conducted in the months of November and December, 1913, developed that it cost 36.486 cents per ton for terminal service, and .465 cents per ton mile for haulage service in Arkansas during that period. So that the cost of handling one ton in terminal service was equivalent to the cost of hauling a ton 78 miles. Thus, in order to make the revenue allowance described above, to compensate for terminal costs, there was added to the actual road mileage of each separate interstate haul in Arkansas, 78 miles, and to the mileage proportion of such haul in other states, 78 miles, and these equated mileages were used as factors to divide the adjusted earnings tabulated between each pair of stations, as described above.

This process assumes that the average terminal cost, per ton handled, in Arkansas, is closely reflective of the average cost per ton for similar service in the other states in which the St. Louis & San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per ton mile in the other states in which the St. Louis & San Francisco Railroad operates.

It is not considered that these assumptions are violent, for the reason that operating and traffic density conditions in Arkansas are thoroughly typical of such conditions upon the railroad as a whole.

The earnings derived from TRANSSTATE FREIGHT hauled entirely through Arkansas by the St. Louis & San Francisco Railroad were divided between that state and other states in which the St. Louis & San Francisco Railroad enjoyed a haul, on an equated mileage basis, similar to

that employed in the assignment of interstate freight revenue to Arkansas, with this exception, that the mileage equivalent allowance for terminal cost was added to the actual mileage haul in the states in which the St. Louis & San Francisco Railroad's haul began and terminated, and no such allowance was added to the Arkansas mileage for the reason that such transstate freight had no terminal handling in Arkansas, as such handling is construed in the formula filed as Exhibit No. 1, which defines "Terminal Handling" as the expense of *originating and delivering* freight.

In assigning to Arkansas its proportion of earnings on freight which, by reason of its original point of shipment and ultimate destination was classified as transstate, but which was delivered to or received from a connecting line at a junction within the State of Arkansas, one terminal equivalent allowance, as previously described, was added to the mileage made by such freight on the St. Louis & San Francisco Railroad in Arkansas to compensate for the "terminal" service rendered on such freight at the point where interchanged with the connecting line.

The foregoing under the heading of Interstate and Trans-state Freight describes the assignment of earnings of that character to the State of Arkansas made in the year ended June 30, 1913. Ordinarily, in the past the railroad had made an assignment of interstate and transstate freight revenue to individual states upon a straight mileage prorate basis.

Comparison of the interstate (including transstate) revenues shown in the railroad's report to the State Railroad Commission of Arkansas for the year ended June 30, 1913, with the results obtained on the equated mileage basis hereinbefore described, shows that upon the straight mileage prorate basis the railroad had assigned

to Arkansas interstate and transstate revenue which, in the aggregate, was 99.18 per cent. of the amount that would have been assigned if the equated mileage basis had been employed. It is believed that the application of the equated mileage basis, in detail, to the revenues of the year ended June 30, 1913, and the comparison of the results thereof with the results of the straight mileage prorate formerly used by the railroad, accurately indicates that relation of the results, which would have been obtained by the detailed application of the equated mileage basis in prior years, to the results which were obtained on a straight mileage prorate basis and reported to the Commission in those years. For this reason the Arkansas interstate and transstate freight earnings reported to the State Railroad Commission in prior years have been adjusted on basis of the relationship of the results of the application of the new formula, to the results obtained under the railroad's former method, in the year ended June 30, 1913, and the figures representing interstate (including transstate) freight revenue in Exhibits Nos. 24, 25, 26, 27, have been arrived at on that basis.

*Passenger Revenue.*

Intrastate and interstate (the latter including transstate) passenger revenues, set up in Exhibits Nos. 22, 24, 25, 26, 27, covering the years ended June 30, 1913, 1912, 1911 and 1910, and the four months ended December 31, 1907, were assigned to Arkansas on the same basis as hereinbefore described for the assignment of freight revenues, with the exception that the adjustments of overcharges, undercharges, etc., were so small in amount (being about one-tenth of one per cent. of total gross passenger revenue assignable to Arkansas in the year ended June 30, 1913), that their analysis in detail

was considered immaterial, and adjustment was made in a lump sum against the ascertained interstate revenue assignable to that state. In figuring the terminal revenue allowance to compensate for terminal cost, for purposes of the assignment to Arkansas, of interstate and transstate revenue in the year ended June 30, 1913, the passenger handled cost, and passenger one mile cost were used in the same manner as the ton handled cost and ton one mile cost in assigning freight revenue; that is to say, an apportionment of operating expenses based on the test conducted in the months of November and December, 1913, developed that it costs 8.677 cents per passenger for terminal service, and 1.242 cents per passenger mile for passenger haulage service, in Arkansas during that period, so that the cost of handling one passenger in terminal service was equivalent to the cost of hauling a passenger seven miles. So in order to make a revenue allowance to compensate for terminal cost, there was added to the actual road mileage of each separate interstate passenger haul in Arkansas, seven miles, and to the mileage proportion of such haul in other states, seven miles, and these equated mileages were used as factors to divide the adjusted earnings tabulated between each pair of stations as is described in the prorate of freight revenue on the preceding pages of this exhibit. The plan followed in assigning transstate passenger revenues to the State of Arkansas was exactly in line with that followed in assigning the transstate freight revenue to Arkansas, with the single difference that the mileage equivalent allowance for terminal cost added to the mileage of other states (no such addition being made to Arkansas mileage of transstate hauls) was seven miles, instead of 78 miles as in the case of freight service.

NOTE: In the assignment hereinafter described of all other revenue accounts, namely:

Excess Baggage,
Mail,
Express,
Other Passenger Train Revenue,
Switch Revenue,
Special Service Train Revenue,
Miscellaneous Transportation Revenue,
Station and Train Privileges,
Parcel Room Receipts,
Storage Freight,
Storage Baggage,
Car Service, and
Miscellaneous Nontransportation Revenue (Interstate Commerce Account No. 19).

The revenues assigned to Arkansas for periods prior to the year ended June 30, 1913, were adjusted on basis of the percentage relationship of the assignment made for the year ended June 30, 1913, under the formula, filed as Exhibit No. 1, to the assignment of such revenues made under the railroad's former method applied in making reports to the State Railroad Commission, with the exception that wherever an actual allocation had been made in the figures reported in prior years to the State Railroad Commission, no such adjustment was necessary, nor was any made, for the reason that the formula filed as Exhibit No. 1 prescribed such actual allocation wherever possible, and such allocations were made of the revenues earned in the year ended June 30, 1913. In some instances the railroad's bases of assignment used in preparing reports to the State Railroad Commission in prior years, were in agreement with that prescribed in the formula, filed as Exhibit No. 1, and no adjustment of the figures reported for these revenues in prior years was necessary, the original figures so reported to the State

Railroad Commission being set up in Exhibits Nos. 24, 25, 26, 27.

The allocations of the various classes of revenues described hereinafter, following this note, all refer to the revenues for the entire year ended June 30, 1913.

*Excess Baggage Revenue.*

INTRASTATE earnings of this character were assigned to Arkansas direct and INTERSTATE earnings of this character were prorated between interested states, and the Arkansas proportion assigned on a straight mileage basis, the actual haul of each movement of excess baggage governing the classification between State and Interstate and prorate between states.

*Parlor and Chair Car Revenue.*

The St. Louis & San Francisco Railroad has no earnings of this character.

*Mail Revenue.*

The earnings from all mail routes located entirely within the State of Arkansas were assigned to that state. The earnings from routes running partly in Arkansas and partly in other states were assigned to Arkansas upon a road mileage prorate of each individual route. No segregation of these earnings was attempted between intrastate and interstate traffic.

*Express Revenue.*

The express company operating over the St. Louis & San Francisco Railroad had not made any actual assignment of revenues by states for individual railroads, it being its practice to report its total earnings within a given state to the State Railroad Commission or other regulating body in a lump sum, without distinction as to earnings made by it upon lines of individual car-

riers. Lacking information of this character, the express revenue assigned to Arkansas in Exhibits Nos. 22, 24, 25, 26, 27 has been determined on the following basis:

The contract of the St. Louis & San Francisco Railroad with the express company now and previously operating over its line, has carried a guarantee of a minimum payment to the railroad per mile of road operated over by the Express Company. These guarantees vary with individual express routes and are assumed to be relatively indicative of the earnings accruing to the railroad on the various express routes.

These guarantees were applied to the mileage of each route on the entire St. Louis & San Francisco Railroad, and the guarantee earnings for each state determined upon a mileage basis of individual routes wholly or partially within such states. The resultant guarantee earning figures were totaled for the entire railroad and the percentage relation of such guarantee earnings for Arkansas to the total determined. The Arkansas percentage thus obtained was applied to the total actual express earnings of the St. Louis & San Francisco Railroad, and the amounts so obtained set up in Exhibits Nos. 22, 24, 25, 26, 27, as the express earnings of the railroad in the State of Arkansas.

*Milk Revenue on Passenger Trains.*

The St. Louis & San Francisco Railroad has no earnings of this character.

*Other Passenger Train Revenue.*

Earnings of this character consist principally of revenue derived from the hauling of special cars in passenger trains. Earnings of this character, when earned entirely within the State of Arkansas, were all credited to that state. When earned partially in Arkansas and partially in other states, assignment was made to Arkansas upon

basis of the road mileage of the haul governing individual items of earnings. The assignment between intrastate and interstate was made upon the basis of the location of the service, each separate item of earnings being analyzed.

*Switch Revenue.*

All switch revenue earned in Arkansas was credited to that state. The classification of these earnings in Arkansas between intrastate and interstate was made on the basis of road haul to which the switch service attached itself. In analyzing switch revenue collected for other carriers on account of traffic on which the St. Louis & San Francisco Railroad secured no road haul, the records of other carriers were examined, and classification of such earnings between intrastate and interstate was made upon basis of the road haul of the carrier for which the switching was performed. Each individual item of switch earnings was analyzed and classified as above. Debits to this account in the nature of switching paid other companies were classified as between state and interstate in the same manner as is indicated above for switching earned.

*Special Service Train Revenue.*

Earnings of this character consist of the revenue derived from running chartered trains. East item of earnings of this character was analyzed, and such as were earned entirely within the State of Arkansas were assigned in total to that state. Of such items as were earned partially in Arkansas and partially in other states there was assigned to Arkansas a straight mileage prorate, each individual item being treated separately. Division of these earnings between freight and passenger, and between intrastate and interstate was made upon the basis of actual allocation.

*Miscellaneous Transportation Revenue.*

Each item of these earnings was analyzed separately. Such items as were earned entirely within the State of Arkansas were credited in total to that state. Of such items as were earned partially in Arkansas and partially in other states, there was assigned to Arkansas a straight mileage prorate. The classification between freight and passenger intrastate and interstate, was made upon the basis of actual allocation. Where items attached themselves to a road haul, the classification between intrastate and interstate freight and passenger was made upon basis of the road haul to which the item attached.

*Station and Train Privileges.*

STATION PRIVILEGES: Earnings of this character consist principally of revenues from weighing, vending and other automatic machines located at stations, advertising at stations, news privileges at stations and kindred items. Each item of earnings of this character was analyzed separately. All earnings accruing within the State of Arkansas were credited to that state. All of these earnings are properly creditable to the passenger account. The division between intrastate and interstate being impracticable as a matter of actual allocation, it was made on the basis of revenue passenger miles of each class within the State of Arkansas.

TRAIN PRIVILEGES: Earnings of this character are derived from the granting of privileges for the sale of newspapers, fruits, etc., on trains. The payment received by the railroad is based upon a percentage of the receipts of the news company from such sales. It was, therefore, thought that the volume of travel, intrastate and interstate, was a fair basis of division of this revenue as between intrastate and interstate. Earnings of this character for the entire line were divided between states

upon a revenue passenger train mile basis, Arkansas being credited with that proportion of the total earnings which the passenger revenue train miles in that state bore to the total passenger revenue train miles of the entire railroad. It being impracticable to assign this expense actually to intrastate or interstate, such assignment was made upon the basis of revenue passenger miles of each class within the State of Arkansas.

*Parcel Room Receipts.*

Each item of this character of earnings was analyzed separately, and assignment was made to Arkansas of all earnings actually accruing in that state. Division of earnings of this character, assignable to Arkansas, between intrastate and interstate, was made upon the basis of intrastate and interstate passengers using stations within that state.

In making this division, the number of transstate passengers was excluded from consideration, for the reason that as a usual thing no parcel room earnings are derived, on the St. Louis & San Francisco Railroad, from transstate passengers.

*Storage Freight.*

All credits to this account were analyzed, each individual item separately. Assignment was made to Arkansas of all such credits covering earnings accruing within that state. Division of these earnings between intrastate and interstate was made upon the basis of the actual road haul of the shipment upon which storage was collected. Some adjustments in the nature of refunds and some collections not definitely locatable to states and as between intrastate and interstate traffic, were assigned to Arkansas, and to intrastate and interstate on the basis of assignment of the locatable credits, as described above.

*Storage Baggage.*

Each item of earnings of this character was analyzed and such earnings as actually accrued within the State of Arkansas were assigned to that state. An actual division of earnings of this character between intrastate and interstate being impracticable from the railroad's records, such division was made upon the basis of passengers using stations, as described under the head of Parcel Room Receipts.

*Car Service.*

The same basis of locations of earnings to Arkansas and division between intrastate and interstate, that was employed in assigning earnings from "Storage Freight," was employed in the assignment of car service earnings. Revenues of this character were all credited to freight.

*Rental of Buildings and Other Property.*

Income of this character was considered as being a proper deduction from rentals of similar character paid, which have been treated in Exhibits Nos. 22, 24, 25, 26, 27, as income charges.

The explanation of the allocation of net rentals to the State of Arkansas and their assignment to the various classes of traffic, is detailed in Exhibit No. 5.

*Telegraph and Telephone Service.*

The St. Louis & San Francisco Railroad has no earnings of this character.

*Miscellaneous (Nontransportation) Earnings.*

The designation of this account not being sufficiently descriptive, it should be stated that the earnings credited thereto consist, in the main, of revenues derived from the following sources:

Detouring trains of other lines.

Water furnished locomotives of other lines, on their detoured trains.

Use of wyes, turntables, etc., by other lines.

Commission on meal tickets.

Fees in garnishment suits.

Commissions on premiums collected on indemnity bonds of employees.

Commission on collections of casualty insurance premiums.

Profit on rails and ties sold.

Parking charges on passenger cars of private, or other line, ownership.

Bridge tolls of foot passengers and wagons.

Charges for feeding live stock in transit.

These earnings when accruing entirely within the State of Arkansas were all assigned to that state. Where earned partially in Arkansas and partially in other states, Arkansas was assigned its proper relative mileage proportion. Actual allocation was made between intrastate and interstate wherever possible. As an illustration: In the case of earnings derived from detouring foreign line trains (one of the largest items in the account), if the detour was made entirely within Arkansas, the revenue was considered as intrastate. If the detour was made partially in Arkansas, and partially in another state, the earnings derived therefrom were considered as interstate.

Such items as could not be definitely located to Arkansas or between freight and passenger, intrastate and interstate, were divided under these heads on the same basis as the location of the operating expenses in I. C. C. Accounts Nos. 106 to 116, inclusive, "General Expenses," as described in a subsequent exhibit. The theory on which this latter division was made was that these earn-

ings, with the exception of detouring, which permits of direct allocation, were of such a character that the expense of securing them was practically all included within the "General Expenses" of the railroad.

*Joint Facilities Revenue—Dr.*

*Joint Facilities Revenue—Cr.*

The revenue accrued in the credit side of these accounts consisting entirely of amounts received from other carriers, as the St. Louis & San Francisco Railroad's proportion of rentals collected for the use of portions of depots and concessions in depots, in which the St. Louis & San Francisco Railroad is the tenant of another line, and the entries on the debit side of these accounts representing proportions of rental of a similar character paid to other lines by the St. Louis & San Francisco Railroad, where it is the landlord line, have been treated as a proper deduction from rentals paid under the head of "Income Charges," detail of the assignment of which is set forth in a subsequent exhibit.

# APPENDIX NO. 2.

## EXHIBIT No. 5.

METHOD OF ASSIGNMENT TO ARKANSAS AND APPORTIONMENT BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC, OF TAXES, RENTALS AND HIRE OF EQUIPMENT.

*Taxes.*

Taxes accrued upon the books of the railroad during each of the periods covered by Exhibits Nos. 22, 24, 25, 26, 27, have been set up therein. The basis of assessment in Arkansas is on value of the physical property, consideration, however, being given to its earning capacity and other items affecting its value as a going concern. The value determined, however, is placed upon the physical property and the tax levy made upon that basis. The apportionment of state tax, therefore, in Exhibits Nos. 22, 24, 25, 26, 27, between freight and passenger, intrastate, interstate, mail and express, has followed the division of the valuation of the property made as prescribed in the formula filled as Exhibit No. 1, and as set forth in Exhibit No. 18.

Federal taxes have been assigned to Arkansas and prorated between the various classes of traffic on the basis provided for in the formula, filed as Exhibit No. 1.

*Rentals.*

All rentals earned and rentals incurred, as properly accrued and shown on the railroad's books, for the periods covered by Exhibits Nos. 22, 24, 25, 26, 27, have been set up in such exhibits in one lump sum as a net credit for each period (the rental earned in each period

having exceeded the rental charges incurred). The rentals earned by the railroad and treated as set forth herein, consist of items of the following character:

Rental of joint tracks, depots and Memphis and Van Buren bridges. (Interstate Commerce Account "Joint Facilities Rent Income.")

Rentals of buildings and other property. (Interstate Commerce Revenue Account No. 18.)

Proportion accruing to the St. Louis & San Francisco Railroad, of space rental for sundry concessions in joint stations. (Interstate Commerce Revenue Account No. 21.)

The rentals incurred by the railroad, and treated as set forth herein, consist of items of the following character:

Rentals of miscellaneous joint tracks and depots. (Interstate Commerce Account "Joint Facility Rent—Deductions.")

Rental paid for the use of the Kansas City, Fort Scott & Memphis Railway.

All rentals earned or incurred wholly within the State of Arkansas have been credited or charged entirely to that state.

Of rentals earned from, and incurred on account of, tracks and other facilities lying partially in Arkansas and partially in other states, there has been assigned to Arkansas its road mileage proportion, based upon the mileage of each individual track or facility. The apportionment of the debits or credits for rental assigned to the State of Arkansas, as hereinbefore described, was made between freight and passenger, and mail and express on basis of actual use of the rented property or facility wherever possible, and where actual use location was not practicable, such assignment was made on basis of the assignment of operating charges and credits in Inter-

state Commerce Accounts Nos. 22, 23, 51, 52, 77, 78, 104, 105, 115 and 116, these being the joint facility operating debit and credit accounts covering the operating expenses of tracks, facilities, etc., the rentals earned from, or incurred on account of the use of which, were apportioned to Arkansas, as outlined above. These joint facility expense account charges and credits are based upon the use made of each facility by the various classes of service, and reflect such use. Division of these net rentals between intrastate and interstate was made in the case of the freight proportion on basis of respective ton miles of each class, and in the case of the passenger proportion on basis of the respective passenger miles of each class.

One exception to such basis of apportionment of rentals between freight and passenger, intrastate and interstate, and mail and express, was made in the case of rentals earned from the use, by other carriers, of the Memphis bridge. These rentals were divided between freight and passenger on basis of the freight and passenger train mileage made by St. Louis & San Francisco Railroad trains over the bridge and its auxiliary facilities in the State of Arkansas, and the freight and passenger proportions of this rental credit so determined were assigned to interstate traffic. A car-foot mile proportion of the passenger assignment of this credit was allotted to mail and express, based upon the car-foot mileage space, devoted to mail and express in trains passing over the Memphis bridge and its facilities in Arkansas.

Another exception was made in the division of the rentals paid for the use of the Kansas City, Fort Scott & Memphis Railway (Arkansas proportion assigned upon a road mileage basis). The portion of this rental assigned to Arkansas was divided between freight and passenger on basis of the revenue train miles in each class

of services made on the tracks of the Kansas City, Fort Scott & Memphis Railway in Arkansas. The mixed train mileage over the Kansas City, Fort Scott & Memphis Railway in Arkansas was assigned between freight and passenger on basis of the respective freight and passenger gross ton miles in such trains. The freight proportion of this rental was assigned to intrastate and interstate on basis of the respective ton miles of each class hauled over the Kansas City, Fort Scott & Memphis Railway within the State of Arkansas. Of the passenger proportion of this rental charge, a proportion was first assigned to mail and express on basis of the car-foot miles chargeable to mail and express on the Kansas City, Fort Scott & Memphis Railway in Arkansas. The remainder of the passenger proportion of this rental charge was subdivided between intrastate and interstate traffic on basis of the respective passenger miles of each class made upon the Kansas City, Fort Scott & Memphis Railway in Arkansas.

The train mile, car-foot mile, ton mile and passenger mile figures, wherever used in dividing both the Memphis bridge rental credit and Kansas City, Fort Scott & Memphis Railway rental charge, were those obtained by special tests made during the months of November and December, 1913.

(The rental charge above referred to was subsequently eliminated on the direction of the trial court, and the effect of such elimination is shown in Exhibit 28, and such charge is not carried into the income accounts shown in Exhibit 61, or other returns computed in this brief.)

Rentals of buildings and other property (Interstate Commerce Revenue Account No. 18) have been divided between freight and passenger, intrastate and interstate, mail and express, as provided for in the printed formula. (page 7.)

*Hire of Equipment.*

An analysis of the charges and credits to Hire of Equipment was made from the original vouchers issued in payment of hire of equipment charged and bills rendered for the collection of hire of equipment credits. A complete analysis was made of all records of the railroad underlying these bills and vouchers in order to make the proper segregation of charges and credits between locomotives, passenger train cars, freight cars, Pullman cars and work equipment. Having determined the net hire of equipment debit or credit for each class of equipment as set forth above, for the entire railroad, an assignment of a portion thereof was made to Arkansas upon basis of the mileage made by the respective classes of equipment in that state as compared to the mileage of each class of equipment upon the railroad as a whole. The net hire of equipment charge or credit for freight cars on the one hand, and for passenger and Pullman cars on the other, automatically assign themselves to the freight and passenger service. The net charge or credit of this nature covering locomotives was divided between freight and passenger, work and switch service, on basis of the actual mileage made in Arkansas by each individual locomotive in each class of service. The proportion assigned to locomotives in work service was divided between freight and passenger upon basis of the assignment of maintenance-of-way charges in interstate commerce accounts 2 to 17, inclusive, for the reason, that by far the major portion of work locomotive mileage is made in connection with the maintenance of way and structures. The proportion assigned to switch locomotives in Arkansas was divided between freight and passenger on basis of the time devoted to freight and passenger service at all the yards within the State of Arkansas, as developed by an actual time study. The net

charge or credit of this nature covering mixed train locomotives was divided between freight and passenger upon basis of the respective gross ton miles made for account of each class of service in mixed trains. The net charge or credit of this nature covering work car equipment was divided between freight and passenger on the basis of maintenance-of-way charges as set forth under the head of locomotives in work service.

Having accomplished a division of the hire of equipment charges and credits assignable to the State of Arkansas between freight and passenger service on the bases hereinbefore outlined, the subdivision between intrastate, interstate, mail and express was made for each class of equipment upon basis of the similar subdivision of operating expenses in the respective equipment repair accounts, as described in Exhibit No. 1 and the modifications thereof adopted by the St. Louis & San Francisco Railroad. This being the same basis as was employed for the assignment of equipment values to the various classes of traffic.

EXHIBIT No. 17.

MONTHS OF NOVEMBER AND DECEMBER, 1913. STATEMENT SHOWING THE TOTAL OPERATING EXPENSES OF INTRASTATE, INTERSTATE, FREIGHT AND PASSENGER AND MAIL AND EXPRESS TRAFFIC. ALSO THE EXCESS COST OF INTRASTATE TRAFFIC, FREIGHT AND PASSENGER, SEPARATELY, OVER INTERSTATE TRAFFIC.

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Expenses |
|---|---|---|---|---|---|---|---|---|
| | Passenger | Freight | Total | Passenger | Freight | Total | | |
| Line Passenger Expenses (Exhibit No. 13) | $46,681.83 | | $ 46,681.83 | $76,174.84 | | $ 76,174.84 | | |
| Terminal Passenger Expenses (Exhibit No. 16) | 21,381.43 | | 21,381.43 | 10,451.17 | | 10,451.17 | | |
| Line Freight Expenses (Exhibit No. 14) | | $12,213.17 | 12,213.17 | | $205,065.89 | 205,065.89 | | |
| Terminal Freight Expenses (Exhibit No. 15) | | 39,274.38 | 39,274.38 | | 97,947.05 | 97,947.05 | | |
| Line and Terminal Passenger Expenses (Exhibit No. 12) | | | | | | | $35,189.07 | |
| Total | $68,063.26 | $51,487.55 | $119,550.81 | $86,626.01 | $303,012.94 | $389,638.95 | $35,189.07 | $544,378.83 |

EXCESS COST OF INTRASTATE OVER INTERSTATE TRAFFIC

| | Passenger One Mile | Operating Expenses | Operating Expenses per Passenger Mile | Tons One Mile | Operating Expenses | Operating Expenses per Ton Mile |
|---|---|---|---|---|---|---|
| | | | (Cents) | | | (Cents) |
| Intrastate | 4,012,199 | $68,063.26 | 1.6996 | 1,815,845 | $ 51,487.55 | 2.8355 |
| Interstate | 5,883,225 | 86,626.01 | 1.4724 | 44,837,055 | 303,012.94 | .6758 |
| Excess cost of Intrastate over Interstate— | | | | | | |
| Amount | | | .2272 Cents | | | 2.1597 Cents |
| Percentage | | | 15.43% | | | 319.58% |

# APPENDIX NO. 4.

## EXHIBIT 21.

APPORTIONMENT OF OPERATING EXPENSES TO ARKANSAS AND DIVISION THEREOF BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS.

The operating expenses assignable to the State of Arkansas for the year ended June 30, 1913, and the division thereof between freight and passenger service, were determined in accordance with the provisions of the formula filed as Exhibit No. 1, and the modifications thereof, as set forth therein, adopted by the St. Louis & San Francisco Railroad. (See also explanatory Exhibits Nos. 2 and 3.)

(One exception made in following the basis laid down in Exhibit No. 1 (as modified) was in the adjustment, between the various classes of service, of the nonrevenue service costs. The principle laid down in the formula was followed, but the adjustment of the nonrevenue service costs for the year, was made on the basis of the similar adjustment for the months of November and December, 1913, as set forth in Exhibits Nos. 10 and 11. That is to say, the percentage of burden or relief on account of nonrevenue service performed by one revenue service for the other in November and December, 1913, was applied in making the adjustment of nonrevenue service costs in the operating expenses of the year ended June 30. 1913.)

(Another exception, in detail but not in principle, was that the passenger operating expenses in the five Interstate Commerce Commission groups under the heads

of Maintenance of Way and Structures, Maintenance of Equipment, Traffic Expenses, Transportation Expenses, and General Expenses, determined as hereinbefore set forth, for the year ended June 30, 1913, were divided between passenger, and mail and express on the basis of the relative percentages of car-foot miles in mail and express and passenger carrying service, as determined for the months of November and December, 1913.)

The proportion of passenger expenses chargeable to passenger-carrying service (after elimination of mail and express proportion) were divided between intrastate and interstate passenger traffic on basis of the respective passenger miles of each class for the year ended June 30, 1913, there being added, however, to the intrastate passenger miles 15.43 per cent. in arriving at factors for this division, this percentage representing the excess cost per passenger mile of intrastate passenger traffic over interstate passenger traffic, for all passenger operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17.

The freight proportion of operating expenses, determined as hereinbefore set forth, was divided between intrastate and interstate on basis of the respective ton miles of each class for the year ended June 30, 1913, there being added, however, to the intrastate ton miles, in arriving at factors for this division, 319.58 per cent., this percentage representing the excess cost per ton mile of intrastate freight traffic over interstate freight traffic, for all freight operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17.

These calculations which produced the operating expense figures set up in Exhibit No. 22, were as follows:

PASSENGER EXPENSES ASSIGNED TO ARKANSAS AND SUBDIVISION BETWEEN MAIL AND EXPRESS.

| | Passenger Proportion (79.62%) | Mail and Express Proportion (20.38%) | Total |
|---|---|---|---|
| Maintenance of Way and Structures | $249,821.67 | $ 63,945.81 | $ 313,767.48 |
| Maintenance of Equipment | 154,274.96 | 42,194.50 | 196,469.46* |
| Traffic Expenses | 42,438.11 | ..... | 42,438.11‡ |
| Transportation Expenses | 406,001.94 | 88,473.89 | 494,475.83† |
| General Expenses | 26,804.32 | 6,860.99 | 33,665.31 |
| Total | $879,341.00 | $201,475.19 | $1,080,816.19 |

The percentages shown above represent the proportions of car-foot miles devoted to passenger-carrying and mail and express service respectively, in the months of November and December, 1913.

*The car-foot mile percentage shown above (20.38 per cent) was applied to all maintenance-of-equipment expenses except repairs, renewals and depreciation of passenger train cars. By reason of the exclusion of Pullman car-foot mileage from the prorate of these accounts, mail and express was assigned 23.96 per cent.

†In dividing transportation expenses as above, the car-foot percentage (20.38 per cent), chargeable to mail and express, was not applied to station service, the railroad's proportion of wages of joint baggagemen and express messengers, or the wages of train auditors. The mail and express proportion of station expenses was assigned to that service direct on the basis of the time study made by agents in November and December, 1913, and described in Exhibit No. 2. The railroad's proportion of the wages of joint baggagemen and express messengers not being chargeable to mail or express, was assigned direct to passenger, as was also the wages of train auditors.

‡Traffic Expenses: No car-foot mileage elimination was made to charge mail and express, for the reason that no portion of traffic expenses is chargeable to mail and express traffic.

DIVISION OF PASSENGER EXPENSES ASSIGNED TO ARKANSAS (MAIL AND EXPRESS ELIMINATED AS ABOVE) BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

| | Intrastate | Interstate | Total |
|---|---|---|---|
| Passenger one mile, year ended June 30, 1913 | 14,401,807 | 30,609,633 | 45,011,440 |
| Add 15.43% for excess cost | 2,222,199 | | 2,222,199 |
| Total | 16,624,006 | 30,609,633 | 47,233,639 |
| Percentage of each class | 35.20% | 64.80% | 100.00% |

| | Total | Intrastate Proportion | Interstate Proportion |
|---|---|---|---|
| Passenger Expenses (Mail and Express eliminated) | | (35.20%) | (64.80%) |
| Maintenance of Way and Structures | $249,821.67 | $ 87,937.23 | $161,884.44 |
| Maintenance of Equipment | 154,274.96 | 54,304.79 | 99,970.17 |
| Traffic Expenses | 42,438.11 | 14,938.21 | 27,499.90 |
| Transportation Expenses | 406,001.94 | 143,084.34 | 262,917.60 |
| General Expenses | 26,804.32 | 9,435.12 | 17,369.20 |
| Total | $879,341.00 | $309,699.69 | $569,641.31 |

DIVISION OF FREIGHT EXPENSES ASSIGNED TO ARKANSAS BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

| | Intrastate | Interstate | Total |
|---|---|---|---|
| Tons one mile, year ended June 30, 1913 | 9,151,859 | 317,039,391 | 326,191,250 |
| Add 319.58% for excess cost | 29,247,511 | | 29,247,511 |
| Total | 38,399,370 | 317,039,391 | 355,438,761 |
| Percentage of each class | 10.80% | 89.20% | 100.00% |

| Freight Expenses: | Total | Intrastate Proportion (10.80%) | Interstate Proportion (89.20%) |
|---|---|---|---|
| Maintenance of Way and Structures | $ 363,949.37 | $ 39,306.53 | $ 324,642.84 |
| Maintenance of Equipment | 406,760.75 | 43,930.16 | 362,830.59 |
| Traffic Expenses | 55,764.96 | 6,022.62 | 49,742.34 |
| Transportation Expenses | 1,117,178.64 | 119,815.39 | 997,363.25 |
| General Expenses | 92,100.48 | 9,291.86 | 82,808.62 |
| Total | $2,035,754.20 | $ 218,366.56 | $1,817,387.64 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Col. ,o. 19)..... | $ 19,860.47 | $ 27,613.36 | $ 47,473.83 | $ 146,272.76 | $ 40,778.16 | $ 187,050.92 | $ 17,192.27 | $ 251,717.02 | |
| Tota. ..ting Expenses and Above Taxes..... | $ 238,227.03 | $ 337,313.05 | $ 575,540.08 | $ 1,963,660.40 | $ 610,419.47 | $ 2,574,079.87 | $ 218,667.46 | $ 3,368,287.41 | |
| Net after deducting expenses and above taxes..... | $ 26,043.72 | $ 77,870.94 | $ 103,914.66 | $ 796,764.44 | $ 165,179.94 | $ 961,944.38 | $ 4,024.11 | $ 1,069,883.15 | |
| Federal Income Tax (Exhibit No. 19)..... | 140.40 | 420.62 | 561.02 | 4,302.64 | 892.07 | 5,194.71 | 21.95 | 5,777.68 | |
| Net Operating Income..... | $ 25,903.32 | $ 77,450.32 | $ 103,353.64 | $ 792,461.80 | $ 164,287.87 | $ 956,749.67 | $ 4,002.16 | $ 1,064,105.47 | |
| Rental Credit (Net) (Exhibit 1, pages 7-A-B-C)..... | $ 3,032.79* | $ 27,840.56* | $ 30,873.35* | $ 108,339.09 | $ 47,449.40 | $ 155,788.49 | $ 4,005.30 | $ 128,920.44 | |
| Hire of Equipment Credit (Net) (Exhibit No. 20)..... | 1,680.85* | 4,836.41 | 3,155.56 | 3,009.18* | 4,754.77 | 1,745.59 | 2,454.88 | 7,356.03 | |
| Total Rental and Hire of Equipment Credit (Net).. | $ 4,713.64* | $ 23,004.15* | $ 27,717.79* | $ 105,329.91 | $ 52,204.17 | $ 157,534.08 | $ 6,460.18 | $ 136,276.47 | |
| Balance Available as Return on Value of Property..... | $ 21,189.68 | $ 54,446.17 | $ 75,635.85 | $ 897,791.71 | $ 216,492.04 | $ 1,114,283.75 | $ 10,462.34 | $ 1,200,381.94 | |
| Value of Property..... | $1,971,627.52 | $2,739,523.46 | $4,711,150.98 | $14,517,549.68 | $4,047,717.86 | $18,565,267.54 | $1,706,902.29 | $24,983,320.81 | |
| Percentage of Return..... | 1.07% | 1.99% | 1.61% | 6.18% | 5.35% | 6.00% | .61% | 4.80% | |
| During the year ended June 30, 1913, the St. Louis and San Francisco Railroad charged in Arkansas for the transportation of Intrastate freight the Court Tariff Rates, and for the transportation of passengers, rates based on three cents a mile. If it had charged the freight rates carried in Standard Distance Tariff No. 3, and a flat Intrastate passenger rate of two cents a mile, the Intrastate Freight and Passenger Revenues shown above would have been diminished by the amounts set opposite..... | $ 20,389.53 | $ 119,875.02 | $ 140,264.55 | | | | | | |
| Leaving the amounts shown opposite available for return on the value of property..... | $ 800.15 | $ 65,428.85* | $ 64,628.70* | | | | | | |

(*) Denotes red figures.

APPENDIX No. 5.

EXHIBIT No. 22.

EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT, AND RETURN UPON THE VALUE OF THE PROPERTY, FOR THE YEAR ENDED JUNE 30, 1913.

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| OPERATING REVENUE: | | | | | | | | |
| Freight | $259,241.05 | $..... | $ 259,241.05 | $ 2,728,169.36 | $..... | $ 2,728,169.36 | $..... | $ 2,987,410.41 |
| Passenger | ..... | 407,911.16 | 407,911.16 | ..... | 762,300.53 | 762,300.53 | ..... | 1,170,211.69 |
| Excess baggage | ..... | 5,077.10 | 5,077.10 | ..... | 8,521.71 | 8,521.71 | ..... | 13,598.81 |
| Mail | ..... | ..... | ..... | ..... | ..... | ..... | 97,329.22 | 97,329.22 |
| Express | ..... | ..... | ..... | ..... | ..... | ..... | 125,362.35 | 125,362.35 |
| Other passenger train revenue | ..... | 424.65 | 424.65 | ..... | 230.02 | 230.02 | ..... | 654.67 |
| Switch revenue | 125.72* | ..... | 125.72* | 12,557.50 | ..... | 12,557.50 | ..... | 12,431.78 |
| Special service train revenue | 650.00 | ..... | 650.00 | 792.00 | 135.13 | 927.13 | ..... | 1,577.13 |
| Misc. transportation revenue | ..... | 4.00 | 4.00 | 7.00 | 250.55 | 257.55 | ..... | 261.55 |
| Station and train privileges | ..... | 822.24 | 822.24 | ..... | 1,747.27 | 1,747.27 | ..... | 2,569.51 |
| Parcel room receipts | ..... | 56.68 | 56.68 | ..... | 38.07 | 38.07 | ..... | 94.75 |
| Storage—Freight | 517.05 | ..... | 517.05 | 5,226.61 | ..... | 5,226.61 | ..... | 5,743.66 |
| Storage—Baggage | ..... | 337.06 | 337.06 | ..... | 221.69 | 221.69 | ..... | 558.75 |
| Car service | 3,562.67 | ..... | 3,562.67 | 9,252.86 | ..... | 9,252.86 | ..... | 12,815.53 |
| Miscellaneous | 425.70 | 551.10 | 976.80 | 4,419.51 | 2,154.44 | 6,573.95 | ..... | 7,550.75 |
| Joint facilities revenue—Dr. (none) | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Total Operating Revenue | $264,270.75 | $ 415,183.99 | $ 679,454.74 | $ 2,760,424.84 | $ 775,599.41 | $ 3,536,024.25 | $ 222,691.57 | $ 4,438,170.56 |
| OPERATING EXPENSES: (Exhibit No. 21) | | | | | | | | |
| Maint. of way and structures | $ 39,306.53 | $ 87,937.23 | $ 127,243.76 | $ 324,642.84 | $ 161,884.44 | $ 486,527.28 | $ 63,945.81 | $ 677,716.85 |
| Maintenance of equipment | 43,930.16 | 54,304.79 | 98,234.95 | 362,830.59 | 99,970.17 | 462,800.76 | 42,194.50 | 603,230.21 |
| Traffic expenses | 6,022.62 | 14,938.21 | 20,960.83 | 49,742.34 | 27,499.90 | 77,242.24 | ..... | 98,203.07 |
| Transportation expenses | 119,815.39 | 143,084.34 | 262,899.73 | 997,363.25 | 262,917.60 | 1,260,280.85 | 88,473.89 | 1,611,654.47 |
| General expenses | 9,291.86 | 9,435.12 | 18,726.98 | 82,808.62 | 17,369.20 | 100,177.82 | 6,860.99 | 125,765.79 |
| Total Operating Expenses | $ 218,366.56 | $ 309,699.69 | $ 528,066.25 | $ 1,817,387.64 | $ 569,641.31 | $ 2,387,028.95 | $ 201,475.19 | $ 3,116,570.39 |
| TAXES (State, Municipal and [illegible] (Exhibit No. [illegible]) | | | | | | | | |

...ting Expenses

# APPENDIX NO. 6.

## EXHIBIT 23.

EXPLANATION OF THE METHOD EMPLOYED IN ASCERTAINING THE FIGURES FOR EARNINGS AND EXPENSES ASSIGNED TO ARKANSAS, AND TO FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC, IN THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907, AS SET FORTH IN EXHIBITS NOS. 24, 25, 26 AND 27.

The St. Louis & San Francisco Railroad, in preparing the reports required by the Railroad Commission of the State of Arkansas during the years ended June 30, 1913, 1912, 1911 and 1910, used a formula for the allocation of revenues and expenses to that State which was uniformly applied throughout all of those years. It also had in use uniformly throughout all of the years mentioned a formula for the division of expenses between freight and passenger services for purposes of its own operating comparisons.

In order to accomplish a reassignment of earnings and expenses to Arkansas for the years ended June 30, 1912, 1911 and 1910, on basis of the new formula filed as Exhibit No. 1, in the time at the disposal of the railroad, and to avoid the enormous expense incident to reworking all of the voluminous detail, it was felt that a proper showing of Arkansas earnings and expenses divided between the freight and passenger services in the years ended June 30, 1912, 1911 and 1910, might be made by determining the RELATION of the results obtained for the year ended June 30, 1913, from an actual application, to the earnings and expenses of the railroad of the new formula filed as Exhibit No. 1, and the formulas formerly used in making reports to the State Railroad Commis-

sion, and dividing expenses between freight and passenger for purposes of operating comparisons, and by equating the earnings and expenses, reported to the State Railroad Commission and as divided between freight and passenger, on basis of the percentage relation of the results of applying the formula filed as Exhibit No. 1 and the results of applying the Railroad Company's old formula to the earnings and expenses of the year ended June 30, 1913, in minute detail. That is to say, if a comparison of the results obtained under the formula filed as Exhibit No. 1, with the results obtained under the application of the railroad's old formula showed that in the year ended June 30, 1913, the new basis assigned, to Arkansas, or to freight and passenger, on a given item of earnings or expenses, 102 per cent. of the amount assigned for the same item under the old formula, the amount assigned under the old formula in the years ended June 30, 1912, 1911 and 1910, and the four months ended December 31, 1907, has been increased 2 per cent. If, on the other hand, the amount assigned in the year ended June 30, 1913, under the formula filed as Exhibit No. 1 was 98 per cent. of the amount assigned under the old formula in that year, the amount assigned under the old formula in the prior periods was reduced 2 per cent.

It is believed that this process of equation has resulted in a correct reflection of the assignment of earnings and expenses which would have been made to Arkansas, and between freight and passenger services, in the years ended June 30, 1912, 1911 and 1910, if the formula filed as Exhibit No. 1 had been applied thereto in detail.

This equation was applied only to such items as could not be actually allocated to Arkansas, or between freight and passenger, and could only be so allocated by means of a detailed analysis or prorate. Such items as per-

mitted of actual direct allocation without analysis or prorate, were directly allocated in each of the years, namely, intrastate freight and passenger revenues, mail and express earnings, and special service train revenue.

In its report to the State Railroad Commission of Arkansas for the year ended June 30, 1908 (which, of course, included the four months ended December 31, 1907), the railroad had not made any assignment of earnings and expenses to Arkansas, but had reported to the Railroad Commission of that State the earnings and expenses of the entire railroad. In order, therefore, to carry out the plan hereinbefore outlined, it was necessary to assign expenses to Arkansas and between freight and passenger for the four months ended December 31, 1907, on basis of the railroad's old formula used in making such assignments and divisions in the years ended June 30, 1913, 1912, 1911 and 1910. It was then practicable to make the same equation of earnings and expenses for the four months ended December 31, 1907, as was made for the years ended June 30, 1912, 1911 and 1910.

The table on the following page shows the relation of the results of applying the formula filed as Exhibit No. 1, to the results of applying the railroad's old formula, both as to assignment of earnings and expenses to Arkansas, and between freight and passenger for the year ended June 30, 1913.

YEAR ENDED JUNE 30, 1913.

| Earnings: | Amount Assigned to Arkansas Under Old Formula and Reported to State R. R. Commission | Amount Assigned to Arkansas as Result of Applying New Formula Filed as Exhibit No. 1 | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Old Formula |
|---|---|---|---|
| Freight—Interstate | $2,705,751.36 | $2,728,169.36 | 100.82% |
| Freight—Intrastate | 256,195.32 | 259,241.05* | 101.19% |
| Passenger—Interstate | 832,775.14 | 762,300.53 | 91.51% |
| Passenger—Intrastate | 407,911.16 | 407,911.16 | 100.00% |
| Excess Baggage | 13,391.52 | 13,598.81 | 101.55% |
| Mail | 97,329.22 | 97,329.22 | 100.00% |
| Express | 125,362.35 | 125,362.35 | 100.00% |
| Other Passenger Train Revenue | 746.39 | 654.67 | 87.71% |
| Switch Revenue | 13,869.76 | 12,431.78 | 89.63% |
| Special Service Train Revenue | 900.70 | 1,577.13 | 175.10% |
| Mis. Transportation Rev | 245.26 | 261.55 | 106.64% |
| Sta. and Train Privileges | 3,080.44 | 2,569.51 | 83.41% |
| Parcel Room Receipts | 94.30 | 94.75 | 100.48% |
| Storage Freight | 5,101.82 | 5,743.66 | 112.58% |
| Storage Baggage | 554.80 | 558.75 | 100.71% |
| Car Service | 11,621.48 | 12,815.53 | 110.28% |
| Miscellaneous | 8,767.89 | 7,550.75 | 86.12% |
| Total Earnings | $4,483,698.91 | $4,438,170.56 | 98.98% |

| Operating Expenses (Freight): | Amount Assigned to Arkansas and Reported to State R. R. Commission—Proportion Assigned to Frt. Under Old Formula | Amount Assigned to Arkansas Frt. Service Under New Formula Filed as Exhibit No. 1 | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Old Formula |
|---|---|---|---|
| Maintenance of Way and Structures | $ 322,071.01 | $ 363,949.37 | 113.00% |
| Maintenance of Equipment | 410,250.21 | 406,760.75 | 99.15% |
| Traffic Expenses | 56,964.49 | 55,764.96 | 97.89% |
| Transportation Expenses | 1,010,166.09 | 1,117,178.64 | 110.59% |
| General Expenses | 75,619.25 | 92,100.48 | 121.80% |
| Total | $1,875,071.05 | $2,035,754.20 | 108.57% |

*Not equated—original assignment allowed to stand, for reasons given on page 1 of Exhibit No. 4.

YEAR ENDED JUNE 30, 1913.

| Operating Expenses (Passenger): | Amount Assigned to Arkansas and Reported to State R. R. Commission—Proportion Assigned to Passenger Under Old Formula | Amount Assigned to Arkansas Passenger Service Under New Formula Filed as Exhibit No. 1 | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Old Formula |
|---|---|---|---|
| Maintenance of Way and Structures | $ 284,123.24 | $ 313,767.48 | 110.43% |
| Maintenance of Equipment | 209,356.92 | 196,469.46 | 93.84% |
| Traffic Expenses | 45,031.01 | 42,438.11 | 94.24% |
| Transportation Expenses | 553,598.66 | 494,475.83 | 89.32% |
| General Expenses | 66,709.48 | 33,665.31 | 50.47% |
| Total | $1,158,819.31 | $1,080,816.19 | 93.27% |

The percentages arrived at as shown in the foregoing tables, were used to equate the earnings and expenses of the years ended June 30, 1912, 1911 and 1910, and the four months ended December 31, 1907, as set forth in Exhibits Nos. 24, 25, 26 and 27, with the exception of intrastate freight and passenger earnings, mail and express earnings, and special service train revenues, which, as previously stated herein, were actually allocated under the old formula in all of the periods mentioned and required no equation to put them upon the basis of the provisions of the new formula filed as Exhibit No. 1.

ASSIGNMENT OF EARNINGS TO INTRASTATE AND INTERSTATE, IN THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907.

In the preceding portion of this exhibit, there has been explained the method employed in assigning, to Arkansas, earnings for the periods indicated above on basis of a comparison of the results of applying the railroad's old

formula with the results of applying the new formula filed as Exhibit No. 1, in the year ended June 30, 1913. In allocating to intrastate and interstate the earnings so assigned to Arkansas, the following method has been employed.

The major portion of the earnings were susceptible of actual allocation to intrastate and interstate, or had been so allocated under the railroad's old formula. These consisted of the following:

Freight Revenue.

Passenger Revenue.

Special Service Train Revenue.

The remainder of the earnings could not be allocated to intrastate or interstate without a detailed analysis, and the amounts of these assigned to Arkansas on the basis previously explained in the years ended June 30, 1912, 1911 and 1910, and the four months ended December 31, 1907, were divided between intrastate and interstate on basis of the assignment made as the result of analysis or prorate in accordance with provisions of Exhibit No. 1 in the year ended June 30, 1913. The earnings assigned as above consisted of the following:

Excess Baggage.

Other Passenger Train Revenue.

Switch Revenue.

Station and Train Privileges.

Parcel Room Receipts.

Storage Freight.

Storage Baggage.

Car Service.

Miscellaneous Transportation Revenue.

Miscellaneous Revenue (Nontransportation).

The percentage relations of the assignment of the foregoing earnings, intrastate and interstate, in the

year ended June 30, 1913 (see Exhibit No. 22), were as follows:

| | INTRASTATE | | INTERSTATE | |
|---|---|---|---|---|
| | Amount | Per Cent of Total | Amount | Per Cent of Total |
| Excess Baggage | $5,077.10 | 37.34% | $ 8,521.71 | 66.66% |
| Other Passenger Train Revenue | 424.65 | 64.86% | 230.02 | 35.14% |
| Switch Revenue | 125.72* | 1.01%* | 12,557.50 | 101.01% |
| Station and Train Privileges | 822.24 | 32.00% | 1,747.27 | 68.00% |
| Parcel Room Receipts | 56.68 | 59.82% | 38.07 | 40.18% |
| Storage Freight | 517.05 | 9.00% | 5,226.61 | 91.00% |
| Storage Baggage | 337.06 | 60.32% | 221.69 | 39.68% |
| Car Service | 3,562.67 | 27.80% | 9,252.86 | 72.20% |
| Miscellaneous Transportation Revenue: | | | | |
| Freight Proportion | None | | 7.00 | 100.00% |
| Passenger Proportion | 4.00 | 1.57% | 250.55 | 98.43% |
| Miscellaneous Nontransportation Revenue: | | | | |
| Freight Proportion | 425.70 | 8.79% | 4,419.51 | 91.21% |
| Passenger Proportion | 551.10 | 20.37% | 2,154.44 | 79.63% |

*Denotes red figures.

ASSIGNMENT OF EXPENSES TO MAIL AND EXPRESS TRAFFIC IN THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907.

The mail and express traffic of the periods mentioned above was assigned the same percentage proportion of passenger expenses as was assigned to mail and express traffic for the year ended June 30, 1913, as set forth in Exhibit No. 22, as follows:

YEAR ENDED JUNE 30, 1913.

| | Straight Passenger Expenses | Mail and Express Expenses | Total Passenger and Mail and Express Expenses | Mail and Exp. Per Cent of Total |
|---|---|---|---|---|
| Maintenance of Way and Structures | $249,821.67 | $63,945.81 | $313,767.48 | 20.38% |
| Maintenance of Equipment | 154,274.96 | 42,194.50 | 196,469.46 | 21.48% |
| Transportation | 406,001.94 | 88,473.89 | 494,475.83 | 17.89% |
| General | 26,804.32 | 6,860.99 | 33,665.31 | 20.38% |

ASSIGNMENT BETWEEN INTRASTATE AND INTERSTATE TRAFFIC FOR THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907, OF THE EXPENSES ASSIGNED TO FREIGHT AND PASSENGER SERVICES (AFTER THE ASSIGNMENT TO MAIL AND EXPRESS TRAFFIC OF ITS PROPORTION OF PASSENGER EXPENSES:

This assignment was made in the case of freight on the basis of the ton miles actually hauled in each of the periods mentioned above, with the percentage of extra cost of intrastate business, as determined for the year ended June 30, 1913, added to the intrastate traffic. This percentage of extra cost was determined as follows:

YEAR ENDED JUNE 30, 1913.

| | | |
|---|---|---|
| Intrastate Freight Expenses (Exhibit No. 22) | $ 218,366.56 | |
| Intrastate Ton Miles | 9,151,859 | |
| Cost per Ton Mile (cents) | | 2.3860 |
| Interstate Freight Expenses (Exhibit No. 22) | 1,817,387.64 | |
| Interstate Ton Miles | 317,039,391 | |
| Cost per Ton Mile (cents) | | .5732 |
| Excess cost of intrastate over interstate: | | |
| Amount (cents) | | 1.8128 |
| Percentage | | 316.25% |

The same method was employed in the assignment of passenger expenses between intrastate and interstate, the extra cost burden being determined for the year ended June 30, 1913, as follows:

YEAR ENDED JUNE 30, 1913.

| | | |
|---|---|---|
| Interstate Passenger Expenses (Exhibit No. 22) | $ 309,699.69 | |
| Intrastate Passenger Miles | 14,401,807 | |
| Cost per Passenger Mile (cents) | | 2.1504 |
| Interstate Passenger Expenses (Exhibit No. 22) | 569,641.31 | |
| Interstate Passenger Miles | 30,609,633 | |
| Cost per Passenger Mile (cents) | | 1.8610 |
| Excess cost of intrastate over interstate: | | |
| Amount (cents) | | .2894 |
| Percentage | | 15.55% |

It will be noted that the percentages of extra cost shown above for the year ended June 30, 1913, vary slightly from those determined for the months of November and December, 1913, as set forth in Exhibit No. 17, and which were applied in the division of expenses for the year ended June 30, 1913. The reason for this difference is that in applying the extra cost percentages determined in the months of November and December, 1913, to the expenses of the year ended June 30, 1913, the expenses of loss and damage freight, and loss and damage baggage, were excluded from consideration, as they were actually allocated as between intrastate and interstate.

APPENDIX No. 7.

EXHIBIT No. 24.

APPORTIONMENT OF TAXES FOR THE YEAR ENDED JUNE 30, 1912, BETWEEN FREIGHT AND PASSENGER INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC.

STATE, MUNICIPAL AND COUNTY TAXES.

The taxes of this character, accruing in Arkansas on the property of the St. Louis and San Francisco Railroad during the year ended June 30, 1912, amounted to $224,900.41.

These taxes have been divided between the various classes of Traffic on basis of the apportionment of value of property (as set forth on page 11 of this Exhibit), as follows:

APPORTIONMENT OF VALUE OF PROPERTY.

| | Amount | Percent of Total |
|---|---|---|
| Intrastate: | | |
| Freight | $ 2,285,350.00 | 9.21% |
| Passenger | 2,062,502.00 | 8.31% |
| Interstate: | | |
| Freight | 15,302,242.00 | 61.66% |
| Passenger | 3,830,805.00 | 15.43% |
| Mail and Express | 1,337,083.00 | 5.39% |
| Total | $24,817,982.00 | 100.00% |

TAXES APPORTIONED ON FOREGOING PERCENTS.

| | Percent | Amount of Taxes |
|---|---|---|
| Intrastate: | | |
| Freight | 9.21% | $20,713.33 |
| Passenger | 8.31% | 18,689.23 |
| Interstate: | | |
| Freight | 61.66% | 138,673.59 |
| Passenger | 15.43% | 34,702.13 |
| Mail and Express | 5.39% | 12,122.13 |
| Total | 100.00% | $224,900.41 |

(Continued—1)

## EXHIBIT No. 24.

## APPORTIONMENT OF TAXES FOR THE YEAR ENDED JUNE 30, 1912, BETWEEN FREIGHT AND PASSENGER INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC.

### FEDERAL INCOME TAX.

This assignment was made on basis of the relation of the net earnings assigned to Arkansas on Page 15 of this Exhibit (After deducting operating expenses and State, Municipal and County Taxes) to similar net earnings of the entire line for the same period, as follows:

| | Entire Line | Arkansas | Other States |
|---|---|---|---|
| Net Earnings | $11,092,170.07 | $962,528.31 | $10,129,641.76 |
| Percent of Total | 100.00% | 8.68% | 91.32% |
| Tax Divided on Above Percents | $ 77,654.70 | $ 6,740.43 | $ 70,914.27 |

The Arkansas Proportion of this tax, viz.: 8.68% has been divided between Freight and Passenger, Intrastate, Interstate, and Mail and Express on basis of the net earnings of each class (after deducting State, Municipal and County Taxes), as shown on page 15 of this Exhibit.

This apportionment was made as follows:

| | ARKANSAS NET EARNINGS | | Arkansas Proportion of Tax |
|---|---|---|---|
| | Amount | Percent of Total | |
| Intrastate: | | | |
| Freight | $ 26,327.33* | 2.73%* | $ 184.01* |
| Passenger | 111,143.22 | 11.54% | 777.85 |
| Interstate: | | | |
| Freight | 646,891.58 | 67.21% | 4,530.24 |
| Passenger | 215,942.75 | 22.43% | 1,511.88 |
| Mail and Express | 14,878.09 | 1.55% | 104.47 |
| Total | $962,528.31 | 100.00% | $6,740.43 |

*Denotes Red Figures.

(Continued—1¼)

EXHIBIT No. 24.

DETAIL OF NET RENTAL CREDIT—(ARKANSAS PROPORTION) FOR THE YEAR ENDED JUNE 30TH, 1912.

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| RENTAL INCOME: | | | | | | | | |
| I. C. C. account No. 18.—Rents of Buildings and Other Property | $ 112.05 | $ 3,872.94 | $ 3,984.99 | $ 1,099.77 | $ 2,336.08 | $ 3,435.85 | $..... | $ 7,420.84 |
| Joint Facilities Rent—Income | 340.92 | 2,338.13 | 2,679.05 | 9,512.17 | 5,014.47 | 14,526.64 | 1,882.05 | 19,087.74 |
| Memphis Bridge Rent—Income | ..... | ..... | ..... | 129,400.83 | 62,238.06 | 191,638.89 | 16,167.16 | 207,806.05 |
| Total—Rental Income | $ 452.97 | $ 6,211.07 | $ 6,664.04 | $140,012.77 | $69,588.61 | $209,601.38 | $18,049.21 | $234,314.63 |
| RENTAL DEDUCTIONS: | | | | | | | | |
| Joint Facilities Rent—Deductions | $ 3.05 | $ 234.58 | $ 237.63 | $ 85.01 | $ 503.08 | $ 588.09 | $ 188.81 | $ 1,014.53 |
| Joint Facilities Revenue—Debit (I. C. C. Account No. 20) | ..... | 3.18 | 3.18 | ..... | 6.76 | 6.76 | ..... | 9.94 |
| Rental of Kansas City, Fort Scott and Memphis Railway | 3,607.79 | 29,207.95 | 32,815.74 | 101,575.59 | 46,973.46 | 148,549.05 | 19,789.12 | 201,153.91 |
| Total—Rental Deductions | $3,610.84 | $29,445.71 | $33,056.55 | $101,660.60 | $47,483.30 | $149,143.90 | $19,977.93 | $202,178.38 |
| Net Rental Credit | *$3,157.87 | *$23,234.64 | *$26,392.51 | $ 38,352.17 | $22,105.31 | $ 60,457.48 | *$ 1,928.72 | $ 32,136.25 |

*Denotes Red Figures.

(Continued—2)

EXHIBIT No. 24.

APPORTIONMENT OF NET DEBIT FOR HIRE OF EQUIPMENT, FOR THE YEAR ENDED JUNE 30TH, 1912, TO ARKANSAS AND BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC.

Assignment was made to Arkansas on the basis provided in the Formula filed as Exhibit No. 1, as follows:

| | Entire Line | Arkansas | Arkansas Percent of Total |
|---|---|---|---|
| Locomotive Mileage | 25,551,370 | 2,616,700 | 10.24% |
| Freight Train Car Mileage | 231,004,643 | 24,947,514 | 10.80% |
| Passenger Train Car Mileage—Pullman | 9,967,832 | 933,940 | 9.37% |
| Passenger Train Car Mileage—Other Cars | 40,122,263 | 4,096,030 | 10.21% |
| Work Car Mileage | 5,851,171 | 946,149 | 16.17% |

The net credit or debit for Hire of the various classes of equipment for the entire line for the year ended June 30th, 1912, was apportioned on basis of the above percentages, as follows:

| | Net Debit Entire Line | Arkansas Percentage | Arkansas Prop'n of Net Debit |
|---|---|---|---|
| Locomotives (Credit) | $ 64,773.89* | 10.24% | $ 6,632.85* |
| Freight Cars | 167,416.54 | 10.80% | 18,080.99 |
| Passenger Train Cars—Pullman | 35,502.17 | 9.37% | 3,326.55 |
| Passenger Train Cars—Other Cars (Credit) | 59,832.09* | 10.21% | 6,108.86* |
| Work Cars (Credit) | 41,601.04* | 16.17% | 6,726.89* |
| Total Net Debit | $ 36,711.69 | ..... | $ 1,938.94 |

*Denotes Red Figures.

(Continued—3)

EXHIBIT No. 24.

The Arkansas proportion of Hire of Equipment credit or debit determined as above was divided between Freight and Passenger, Intrastate, Interstate and Mail and Express on basis of the division of Equipment valuation as set forth on page 11 of this Exhibit, as follows:

LOCOMOTIVE CREDIT:

Total locomotive credit was divided between Freight and Passenger on basis of assigned Arkansas valuation as set forth on page 11 of this Exhibit.

| | Assigned Value | Percent of Total | Hire of Equipment Credit |
|---|---|---|---|
| Intrastate: | | | |
| Freight | $ 87,419.00 | 7.17% | $ 475.57 |
| Passenger | 150,210.00 | 12.32% | 817.17 |
| Interstate: | | | |
| Freight | 585,232.00 | 48.00% | 3,183.77 |
| Passenger | 278,961.00 | 22.88% | 1,517.60 |
| Mail and Express | 117,412.00 | 9.63% | 638.74 |
| Total | $1,219,234.00 | 100.00% | $ 6,632.85 |

FREIGHT CAR—DEBIT:

Divided as follows:

| | Assigned Value | Percent of Total | Hire of Equipment Debit |
|---|---|---|---|
| Intrastate | $ 376,835.00 | 12.99% | $ 2,348.72 |
| Interstate | 2,524,128.00 | 87.01% | 15,732.27 |
| Total | $2,900,963.00 | 100.00% | $18,080.99 |

PASSENGER TRAIN CAR—CREDIT:

Divided as follows:

| | Assigned Value | Percent of Total | Hire of Equipment Credit |
|---|---|---|---|
| Intrastate | $ 151,483.00 | 27.49% | $ 764.86 |
| Interstate | 281,201.00 | 51.03% | 1,419.81 |
| Mail and Express | 118,366.00 | 21.48% | 597.64 |
| Total | $ 551,050.00 | 100.00% | $ 2,782.31 |

(Continued—4)

EXHIBIT No. 24.

WORK EQUIPMENT—CREDIT.

Divided as follows:

| | Assigned Value | Percent of Total | Hire of Equipment Credit |
|---|---|---|---|
| Intrastate: | | | |
| Freight | $ 15,930.00 | 7.17% | $ 482.32 |
| Passenger | 27,372.00 | 12.32% | 828.75 |
| Interstate: | | | |
| Freight | 106,642.00 | 48.00% | 3,228.91 |
| Passenger | 50,833.00 | 22.88% | 1,539.11 |
| Mail and Express | 21,395.00 | 9.63% | 647.80 |
| Total | 222,172.00 | 100.00% | $6,726.89 |



SUMMARY OF ARKANSAS PROPORTION OF NET DEBIT—HIRE OF EQUIPMENT.

| | INTRASTATE | | INTERSTATE | | Mail and Express | Total |
|---|---|---|---|---|---|---|
| | Freight | Passenger | Freight | Passenger | | |
| Locomotives | $ 475.57* | $ 817.17* | $ 3,183.77* | $ 1,517.60* | $ 638.74* | $ 6,632.85* |
| Freight Cars | 2,348.72 | ..... | 15,732.27 | ..... | ..... | 18,080.99 |
| Passenger Cars | ..... | 764.86 | ..... | 1,419.81* | 597.64* | 2,782.31* |
| Work Equipment | 482.32* | 828.75* | 3,228.91* | 1,539.11* | 647.80* | 6,726.89* |
| Total | $ 1,390.83 | $ 2,410.78* | $ 9,319.59 | $ 4,476.52* | $ 1,884.18* | $ 1,938.94 |

*Denotes Red Figures.

(Continued—5)

## Exhibit No. 24.

THE ORIGINAL COST VALUE OF ROADWAY AND STRUCTURES IN ARKANSAS AS OF JUNE 30, 1912, AS DETERMINED BY THE RAILROAD'S CHIEF ENGINEER, ALSO ASSIGNMENT OF EQUIPMENT VALUES TO ARKANSAS AS OF JUNE 30, 1912. DIVISION OF THE VALUE OF ROADWAY AND STRUCTURES AND EQUIPMENT AS OF JUNE 30, 1912, BETWEEN THE VARIOUS CLASSES OF TRAFFIC FOR YEAR ENDED JUNE 30, 1912.

The original cost of the Roadway and Structures property of which the Railroad stood possessed as of June 30, 1912, was determined by the Railroad's Chief Engineer as $19,924,563.00.

In assigning locomotive values to the State of Arkansas for the year ended June 30, 1913, on the basis of "Value Mileage," it was found (as shown in Exhibit No. 18) that 9.13% of the total value of the Railroad's locomotive equipment was assignable to Arkansas, based upon the value and mileage of locomotives operating in Arkansas during that year. During the year ended June 30, 1913, the actual locomotive mileage run in Arkansas was 9.97% of the total locomotive mileage run upon the entire railroad. During the year ended June 30, 1912, the Arkansas proportion of the total actual locomotive mileage of the entire railroad was 10.24%. It is therefore assumed that if the "Value Mileage" percentage of locomotive values assignable to Arkansas in the year ended June 30, 1913, namely 9.13% be used in assigning locomotive values to Arkansas, in the year ended June 30, 1912, that a *minimum* assignment of locomotive values to Arkansas, in the latter period, will have been made. In justification of this assumption, it should be stated that the Railroad has no regular locomotive assignment to the State of

Arkansas, but moves its locomotives at frequent intervals from one operating division to another, and from State to State, and that the types of locomotives in service in Arkansas are representative and typical of the Railroad's entire locomotive equipment.

For the reasons stated above, therefore 9.13 percent of the book value of all locomotives owned by the Company as of June 30, 1912, has been allotted to Arkansas as the locomotive value properly assignable to that State for the year ended June 30, 1912. The book value of all locomotives owned by the Company as of June 30, 1912, was $13,354,154.00. 9.13 percent of $13,354,-154.00 is $1,219,234.00.

EXHIBIT No. 24.

The total book value of freight train cars owned by the Railroad as of June 30, 1912, was $26,860,764.00. Of this amount there has been assigned to Arkansas a car mile proportion, as follows:

| | Arkansas | Other States | Total |
|---|---|---|---|
| Freight Train Car Miles—Year ended June 30, 1912 | 24,947,514 | 206,057,129 | 231,004,643 |
| Percentage of total | 10.80% | 89.20% | 100.00% |
| Value divided on above percents | $ 2,900,963 | $ 23,959,801 | $ 26,860,764 |

The total book value of passenger train cars owned by the railroad as of June 30, 1912, was $5,397,157.00. Of this amount there has been assigned to Arkansas a car mile proportion as follows:

| | Arkansas | Other States | Total |
|---|---|---|---|
| Passenger Train Car Miles—Year ended June 30, 1912 | 4,096,030 | 36,026,233 | 40,122,263 |
| Percentage of total | 10.21% | 89.79% | 100.00% |
| Value divided on above percents | $ 551,050 | $ 4,846,107 | $ 5,397,157 |

The total book value of work equipment owned by the railroad as of June 30, 1912, was $1,373,974. Of this amount there has been assigned to Arkansas a work car mile proportion as follows:

(Continued—7)

EXHIBIT No. 24.

| | Arkansas | Other States | Total |
|---|---|---|---|
| Work Car Miles—Year ended June 30, 1912 | 946,149 | 4,905,022 | 5,851,171 |
| Percentage of Total | 16.17% | 83.83% | 100.00% |
| Value divided on above percents | $222,172.00 | $1,151,802.00 | $1,373,974.00 |

The total value of equipment assignable to Arkansas for the year ended June 30, 1912, as set forth above is summarized as follows:

| | |
|---|---|
| Locomotives | $1,219,234.00 |
| Freight Train Cars | 2,900,963.00 |
| Passenger Train Cars | 551,050.00 |
| Work Equipment | 222,172.00 |
| Total | $4,893,419.00 |

## DIVISION OF THE VALUE OF PROPERTY BETWEEN THE VARIOUS CLASSES OF TRAFFIC.

Following the method set forth in Exhibit No. 18 for the division of value of property for the year ended June 30, 1913, the proportion of property value applicable to the business of the year ended June 30, 1912, in Arkansas, as set forth in the preceding pages of this Exhibit, has been divided directly between Freight and Passenger Intrastate and Interstate, and Mail and Express, the value of Roadway and Structures on basis of transportation expenses, and the value of Equipment on basis of equipment Maintenance Expenses, as set forth in the table below: (The expense figures used are those of the year ended June 30, 1912:)

| | Amount | Percent of Total |
|---|---|---|
| TRANSPORTATION EXPENSES: | | |
| Intrastate—Freight | $ 138,012.83 | 9.06% |
| Intrastate—Passenger | 132,625.06 | 8.70% |
| Interstate—Freight | 924,441.57 | 60.66% |
| Interstate—Passenger | 246,195.44 | 16.16% |
| Mail and Express | 82,536.82 | 5.42% |
| Total | $1,523,811.72 | 100.00% |

(Continued—8)

EXHIBIT No. 24.

| | Amount | Percent of Total |
|---|---|---|
| LOCOMOTIVE—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Freight | $ 17,326.55 | 7.17% |
| Intrastate—Passenger | 29,800.96 | 12.32% |
| Interstate—Freight | 116,057.18 | 48.00% |
| Interstate—Passenger | 55,320.31 | 22.88% |
| Mail and Express | 23,285.85 | 9.63% |
| Total | $ 241,790.85 | 100.00% |
| FREIGHT TRAIN CARS—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Freight | $ 26,038.15 | 12.99% |
| Interstate—Freight | 174,409.47 | 87.01% |
| Total | $ 200,447.62 | 100.00% |
| PASSENGER TRAIN CARS—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Passenger | $ 14,319.24 | 27.49% |
| Interstate—Passenger | 26,581.19 | 51.03% |
| Mail and Express | 11,188.75 | 21.48% |
| Total | $ 52,089.18 | 100.00% |
| WORK EQUIPMENT—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Freight | $ 1,158.82 | 7.17% |
| Intrastate—Passenger | 1,993.12 | 12.32% |
| Interstate—Freight | 7,762.03 | 48.00% |
| Interstate—Passenger | 3,699.89 | 22.88% |
| Mail and Express | 1,557.38 | 9.63% |
| Total | $ 16,171.24 | 100.00% |

The Roadway and Structures value as of June 30, 1912, is, as heretofore stated, $19,924,563.00. The division of this value on basis of transportation expense percentages hereinbefore set forth, has been made as follows:

| | Transportation Expense Percentages | Division of Value |
|---|---|---|
| Intrastate—Freight | 9.06% | $ 1,805,166.00 |
| Intrastate—Passenger | 8.70% | 1,733,437.00 |
| Interstate—Freight | 60.66% | 12,086,240.00 |
| Interstate—Passenger | 16.16% | 3,219,810.00 |
| Mail and Express | 5.42% | 1,079,910.00 |
| Total | 100.00% | $19,924,563.00 |

(Continued—9)

EXHIBIT No. 24.

The locomotive valuation as of June 30, 1912, amounting to $1,219,234.30, has been divided on basis of locomotive maintenance expense percentages as follows:

| | Locomotive Maintenance Expense Percentages | Division of Value |
|---|---|---|
| Intrastate: | | |
| Freight | 7.17% | $ 87,419.00 |
| Passenger | 12.32% | 150,210.00 |
| Interstate: | | |
| Freight | 48.00% | 585,232.00 |
| Passenger | 22.88% | 278,961.00 |
| Mail and Express | 9.63% | 117,412.00 |
| Total | 100.00% | $1,219,234.00 |

The value of freight train cars as of June 30, 1912, amounting to $2,900,962.50, has been divided on basis of freight car maintenance expense percentages, as follows:

| | Freight Train Car Maintenance Percentages | Division of Value |
|---|---|---|
| Intrastate Freight | 12.99% | $ 376,835.00 |
| Interstate Freight | 87.01% | 2,524,128.00 |
| Total | 100.00% | $2,900,963.00 |

The value of passenger train cars as of June 30, 1912, amounting to $551,049.68, has been divided on basis of passenger train car maintenance expense percentages, as follows:

| | Passenger Train Car Maintenance Percentages | Division of Value |
|---|---|---|
| Intrastate Passenger | 27.49% | $ 151,483.00 |
| Interstate Passenger | 51.03% | 281,201.00 |
| Mail and Express | 21.48% | 118,366.00 |
| Total | 100.00% | $ 551,050.00 |

(Continued—10)

## EXHIBIT No. 24.

The value of work equipment as of June 30, 1912, amounting to $222,171.56, has been divided on basis of work equipment maintenance expense percentages, as follows:

| | Work Equipment Maintenance Percentages | Division of Value |
|---|---|---|
| Intrastate: | | |
| Freight | 7.17% | $ 15,930.00 |
| Passenger | 12.32% | 27,372.00 |
| Interstate: | | |
| Freight | 48.00% | 106,642.00 |
| Passenger | 22.88% | 50,833.00 |
| Mail and Express | 9.63% | 21,395.00 |
| Total | 100.00% | $ 222,172.00 |



## SUMMARY OF ARKANSAS PROPOPTION OF VALUE OF ROADWAY AND STRUCTURES AND EQUIPMENT AS OF JUNE 30, 1912.

| | INTRASTATE | | INTERSTATE | | Mail and Express | Total |
|---|---|---|---|---|---|---|
| | Freight | Passenger | Freight | Passenger | | |
| Roadway and Structures | $1,805,166.00 | $1,733,437.00 | $12,086,240.00 | $3,219,810.00 | $1,079,910.00 | $19,924,563.00 |
| Locomotives | 87,419.00 | 150,210.00 | 585,232.00 | 278,961.00 | 117,412.00 | 1,219,234.00 |
| Freight Cars | 376.835.00 | ..... | 2,524,128.00 | ..... | ..... | 2,900,963.00 |
| Passenger Cars | ..... | 151,483.00 | ..... | 281,201.00 | 118,366.00 | 551,050.00 |
| Work Equipment | 15,930.00 | 27,372.00 | 106,642.00 | 50,833.00 | 21,395.00 | 222,172.00 |
| Total | $2,285,350.00 | $2,062,502.00 | $15,302,242.00 | $3,830,805.00 | $1,337,083.00 | $24,817,982.00 |

(Continued—11)

EXHIBIT No. 24

ASSIGNMENT OF EARNINGS AND EXPENSES TO THE STATE OF ARKANSAS AND TO FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE AND MAIL AND EXPRESS TRAFFIC, FOR THE YEAR ENDING JUNE 30, 1912.

EARNINGS

ASSIGNMENT TO ARKANSAS AND TO FREIGHT AND PASSENGER AND MAIL AND EXPRESS

These assignments have been made on the basis described on pages 1, 2 and 3 of Exhibit No. 23, as follows:

| | Amount Assigned to Arkansas Under Railroad's Old Formula | Percentage Relation of Assignment under New Formula (Ex. No. 1) to Assignment under Railroad's Old Formula (See Exhibit No. 23) | Assignment under Old Formula Equated on Basis of Foregoing Percents Considered as Equivalent to an Assignment in Detail on Basis of New Formula (Ex. No. 1) | DISTRIBUTION OF FOREGOING ASSIGNMENTS | | |
|---|---|---|---|---|---|---|
| | | | | Freight | Passenger | Mail and Express |
| EARNINGS: | | | | | | |
| Freight: | | | | | | |
| Interstate | $2,419,527.91 | 100.82% | $2,439,368.04 | $2,439,368.04 | $..... | $..... |
| Intrastate | 239,506.85 | 100.00% | 239,506.85 | 239,506.85 | ..... | ..... |
| Passenger: | | | | | | |
| Interstate | 851,480.31 | 91.51% | 779,189.63 | ..... | 779,189.63 | ..... |
| Intrastate | 413,511.60 | 100.00% | 413,511.60 | ..... | 413,511.60 | ..... |
| Excess Baggage | 13,551.16 | 101.55% | 13,761.20 | ..... | 13,761.20 | ..... |
| Mail | 96,943.95 | 100.00% | 96,943.95 | ..... | ..... | 96,943.95 |
| Express | 120,383.28 | 100.00% | 120,383.28 | ..... | ..... | 120,383.28 |
| Other Passenger Train Revenue | 1,591.96 | 87.71% | 1,396.31 | ..... | 1,396.31 | ..... |
| Switch Revenue | 13,956.54 | 89.63% | 12,509.25 | 12,509.25 | ..... | ..... |
| Special Service Train Revenue | 4,909.11 | 100.00% | 4,909.11 | 4,626.86 | 282.25 | ..... |
| Miscellaneous Transportation Revenue | 18.22 | 106.64% | 19.43 | ** .52 | ** 18.91 | ..... |
| Station and Train Privileges | 3,841.30 | 83.41% | 3,204.03 | ..... | 3,204.03 | ..... |
| Parcel Room Receipts | 14.60 | 100.48% | 14.67 | ..... | 14.67 | ..... |
| Storage Freight | 4,448.21 | 112.58% | 5,007.79 | 5,007.79 | ..... | ..... |
| Storage Baggage | 415.05 | 100.71% | 418.00 | ..... | 418.00 | ..... |
| Car Service | 7,374.48 | 110.28% | 8,132.58 | 8,132.58 | ..... | ..... |
| Miscellaneous Non-Transportation Revenue | 4,648.62 | 86.12% | 4,003.39 | ** 2,568.97 | ** 1,434.42 | ..... |
| Total | $4,196,123.15 | ..... | $4,142,279.11 | $2,711,720.86 | $1,213,231.02 | $217,327.23 |

**Divided between Freight and Passenger on basis of the actual allocation made for the year ended June 30, 1913.



THIS PAGE VERTICAL

ASSIGNMENT OF ARKANSAS FREIGHT AND PASSENGER EARNINGS TO INTRASTATE AND INTERSTATE
These assignments have been made on the basis described on pages 4 and 5 of Exhibit No. 23, and are as follows:

| | FREIGHT | | | | | PASSENGER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | INTRASTATE | | INTERSTATE | | | INTRASTATE | | INTERSTATE | |
| | Total | Percent (See Ex. No. 23) | Amount | Percent (See Ex. No. 23) | Amount | Total | Percent (See Ex. No. 23) | Amount | Percent (See Ex. No. 23) | Amount |
| EARNINGS: | | | | | | | | | | |
| Freight: | | | | | | | | | | |
| Interstate | $2,439,368.04 | ..... | $..... | 100.00% | $2,439,368.04 | $..... | ..... | $..... | ..... | $..... |
| Intrastate | 239,506.85 | 100.00% | 239,506.85 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Passenger: | | | | | | | | | | |
| Interstate | ..... | ..... | ..... | ..... | ..... | 779,189.63 | ..... | ..... | 100.00% | 779,189.63 |
| Intrastate | ..... | ..... | ..... | ..... | ..... | 413,511.60 | 100.00% | 413,511.60 | ..... | ..... |
| Excess Baggage | ..... | ..... | ..... | ..... | ..... | 13,761.20 | 37.34% | 5,138.43 | 62.66% | 8,622.77 |
| Other Passenger Train Revenue | ..... | ..... | ..... | ..... | ..... | 1,396.31 | 64.86% | 905.65 | 35.14% | 490.66 |
| Switch Revenue | 12,509.25 | 1.01%* | 126.34* | 101.01% | 12,635.59 | ..... | ..... | ..... | ..... | ..... |
| Special Service Train Revenue: | | | | | | | | | | |
| Interstate | 1,621.86 | ..... | ..... | 100.00% | 1,621.86 | 37.10 | ..... | ..... | 100.00% | 37.10 |
| Intrastate | 3,005.00 | 100.00% | 3,005.00 | ..... | ..... | 245.15 | 100.00% | 245.15 | ..... | ..... |
| Miscellaneous Transportation Revenue | .52 | ..... | ..... | 100.00% | .52 | 18.91 | 1.57% | .30 | 98.43% | 18.61 |
| Station and Train Privileges | ..... | ..... | ..... | ..... | ..... | 3,204.03 | 32.00% | 1,025.29 | 68.00% | 2,178.74 |
| Parcel Room Receipts | ..... | ..... | ..... | ..... | ..... | 14.67 | 59.82% | 8.78 | 40.18% | 5.89 |
| Storage Freight | 5,007.79 | 9.00% | 450.70 | 91.00% | 4,557.09 | ..... | ..... | ..... | ..... | ..... |
| Storage Baggage | ..... | ..... | ..... | ..... | ..... | 418.00 | 60.32% | 252.14 | 39.68% | 165.86 |
| Car Service | 8,132.58 | 27.80% | 2,260.86 | 72.20% | 5,871.72 | ..... | ..... | ..... | ..... | ..... |
| Miscellaneous Non-Transportation Revenue | 2,568.97 | 8.79% | 225.81 | 91.21% | 2,343.16 | 1,434.42 | 20.37% | 292.19 | 79.63% | 1,142.23 |
| Total | $2,711,720.86 | ..... | $245,322.88 | ..... | $2,466,397.98 | $1,213,231.02 | ..... | $421,379.53 | ..... | $791,851.49 |

*Denotes Red Figures.

(Continued—12

EXHIBIT No. 24

EXPENSES.

ASSIGNMENT OF EXPENSES TO ARKANSAS AND TO FREIGHT AND PASSENGER.
THESE ASSIGNMENTS HAVE BEEN MADE ON THE BASIS DESCRIBED ON PAGES 3 AND 4 OF EXHIBIT No. 23, AS FOLLOWS:

| | Amount Assigned to Arkansas Under Railroad's Old Formula | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Railroad's Old Formula. (See Exhibit No. 23.) | Assignment Under Old Formula Equated on Basis of Foregoing Percentages—Considered as Equivalent to an Assignment in Detail on Basis of New Formula (Exhibit No. 1.) |
|---|---|---|---|
| OPERATING EXPENSES—FREIGHT: | | | |
| Maintenance of Way and Structures | $ 324,407.98 | 113.00% | $ 366,581.02 |
| Maintenance of Equipment | 363,253.33 | 99.15% | 360,165.68 |
| Traffic Expenses | 60,813.93 | 97.89% | 59,530.76 |
| Transportation Expenses | 960,714.71 | 110.59% | 1,062,454.40 |
| General Expenses | 68,175.56 | 121.80% | 83,037.83 |
| Total | $1,777,365.51 | ..... | $1,931,769.69 |
| OPERATING EXPENSES—PASSENGER: (INCLUDING MAIL AND EXPRESS): | | | |
| Maintenance of Way and Structures | $ 278,580.90 | 110.43% | $ 307,636.89 |
| Maintenance of Equipment | 193,839.98 | 93.84% | 181,899.44 |
| Traffic Expenses | 45,245.63 | 94.24% | 42,639.48 |
| Transportation Expenses | 516,521.85 | 89.32% | 461,357.32 |
| General Expenses | 58,544.82 | 50.47% | 29,547.57 |
| Total | $1,092,733.18 | ..... | $1,023,080.70 |

ASSIGNMENT TO MAIL AND EXPRESS TRAFFIC OF THE PROPORTION OF ARKANSAS PASSENGER EXPENSES CHARGEABLE THERETO.

THIS ASSIGNMENT HAS BEEN MADE ON THE BASIS DESCRIBED ON PAGE No. 6 OF EXHIBIT No. 23, AS FOLLOWS:

| | Passenger Expenses, Including Mail and Express (See Above) | DISTRIBUTION | | | |
|---|---|---|---|---|---|
| | | Passenger | | Mail and Express | |
| | | Percent | Amount | Percent (See Ex. 23) | Amount |
| OPERATING EXPENSES—PASSENGER: | | | | | |
| Maintenance of Way and Structures | $ 307,636.89 | 79.62% | $244,940.49 | 20.38% | $ 62,696.40 |
| Maintenance of Equipment | 181,899.44 | 78.52% | 142,827.44 | 21.48% | 39,072.00 |
| Traffic Expenses | 42,639.48 | 100.00% | 42,639.48 | ..... | ..... |
| Transportation Expenses | 461,357.32 | 82.11% | 378,820.50 | 17.89% | 82,536.82 |
| General Expenses | 29,547.57 | 79.62% | 23,525.78 | 20.38% | 6,021.79 |
| Total | $1,023,080.70 | ..... | $832,753.69 | ..... | $190,327.01 |

(Continued—13)

EXHIBIT No. 24

ASSIGNMENT OF ARKANSAS FREIGHT EXPENSES (SEE PRECEDING PAGE OF THIS EXHIBIT) BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

This assignment has been made on the basis described on page 6 of Exhibit No. 23, as follows:

| | Intrastate | Interstate | Total |
|---|---|---|---|
| Ton Miles in Arkansas—Year ended June 30, 1912 | 9,909,882 | 276,311,939 | 286,221,821 |
| Add 316.25% to provide for extra cost as determined for year ended June 30th, 1913 | 31,340,002 | ..... | 31,340,002 |
| Total | 41,249,884 | 276,311,939 | 317,561,823 |
| Percent of each class to Total | 12.99% | 87.01% | 100.00% |

EXPENSES DIVIDED ON ABOVE PERCENTS

| OPERATING EXPENSES—FREIGHT: | Total | Intrastate (12.99%) | Interstate (87.01%) |
|---|---|---|---|
| Maintenance of Way and Structures | $ 366,581.02 | $ 47,618.87 | $ 318,962.15 |
| Maintenance of Equipment | 360,165.68 | 46,785.52 | 313,380.16 |
| Traffic Expenses | 59,530.76 | 7,733.05 | 51,797.71 |
| Transportation Expenses | 1,062,454.40 | 138,012.83 | 924,441.57 |
| General Expenses | 83,037.83 | 10,786.61 | 72,251.22 |
| Total | $1,931,769.69 | $ 250,936.88 | $1,680,832.81 |



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ASSIGNMENT OF ARKANSAS PASSENGER EXPENSES (AFTER THE ELIMINATION OF MAIL AND EXPRESS PROPORTION—SEE PAGE 13 OF THIS EXHIBIT) BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

This assignment has been made on the basis described on Page 7 of Exhibit No. 23, as follows:

| | Intrastate | Interstate | Total |
|---|---|---|---|
| Passenger Miles in Arkansas—Year ended June 30, 1912 | 14,244,596 | 30,549,490 | 44,794,086 |
| Add 15.55% to provide for extra cost as determined for year ended June 30th, 1913 | 2,215,035 | | 2,215,035 |
| Total | 16,459,631 | 30,549,490 | 47,009,121 |
| Percent of each class to Total | 35.01% | 64.99% | 100.00% |

| | EXPENSES DIVIDED ON ABOVE PERCENTS | | |
|---|---|---|---|
| | Total | Intrastate (35.01%) | Interstate (64.99%) |
| OPERATING EXPENSES—PASSENGER (Mail and Express proportion eliminated): | | | |
| Maintenance of Way and Structures | $ 244,940.49 | $ 85,753.67 | $ 159,186.82 |
| Maintenance of Equipment | 142,827.44 | 50,003.89 | 92,823.55 |
| Traffic Expenses | 42,639.48 | 14,928.08 | 27,711.40 |
| Transportation Expenses | 378,820.50 | 132,625.06 | 246,195.44 |
| General Expenses | 23,525.78 | 8,236.38 | 15,289.40 |
| Total | $ 832,753.69 | $ 291,547.08 | $ 541,206.61 |

(Continued—14)

EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT, AND RETURN UPON THE VALUE OF THE PROPERTY FOR THE FOUR YEARS ENDED JUNE 30TH, 1910, 1911, 1912 AND 1913 IN TOTAL.

| | INTRASTATE | | | INTERSTATE | | | | |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | Mail and Express | Total Business |
| Operating Revenue (Exhibits 22, 24, 25 and 26) | $1,045,182.50 | $ 1,634,913.09 | $ 2,680,095.59 | $10,150,834.01 | $ 2,990 732.40 | $13,141,566.41 | $ 866,806.86 | $16,688,468.86 |
| Less—Diminution in Revenue if a Two-cent Passenger Rate and Commission's Tariff Freight Rates had been charged (Exhibits 22, 24, 25 and 26) | 20,389.53 | 435,714.19 | 456,103.72 | ..... | ..... | ..... | ..... | 456,103.72 |
| Remainder | $1,024,792.97 | $ 1,199,198.90 | $ 2,223,991.87 | $10,150,834.01 | $ 2,990,732.40 | $13,141,566.41 | $ 866,806.86 | $16,232,365.14 |
| Operating Expenses (Exhibits 22, 24, 25 and 26) | 989,090.43 | 1,214,032.72 | 2,203,123.15 | 7,213,687.26 | 2,150,017.86 | 9,363,705.12 | 770,117.03 | 12,336,945.30 |
| Net Operating Revenue | $ 35,702.54 | $ 14,833.82* | $ 20,868.72 | $ 2,937,146.75 | $ 840,714.54 | $ 3,777,861.29 | $ 96,689.83 | $ 3,895,419.84 |
| Deductions: | | | | | | | | |
| Taxes (Exhibits 22, 24, 25 and 26) | $ 79,150.63 | $ 83,255.94 | $ 162,406.57 | $ 573,342.39 | $ 138,997.99 | $ 712,340.38 | $ 51,006.45 | $ 925,753.40 |
| Rental Credit (Net) (Exhibits 22, 24, 25 and 26) | $ 12,394.36* | $ 98,567.96* | $ 110 962.32* | $ 275,198.14 | $ 136,287.88 | $ 411 486.02 | $ 4,976.94 | $ 305,500.64 |
| Add back K. C. F. S. & M. Ry. Rental charge as instructed by the Court | 14,462.22 | 117,083.33 | 131,545.55 | 407,177.13 | 188,298.38 | 595,475.51 | 79,326.92 | 806,347.98 |
| Net Rental Credit | $ 2,067.86 | $ 18,515.37 | $ 20,583.23 | $ 682,375.27 | $ 324,586.26 | $ 1,006,961.53 | $ 84,303.86 | $ 1,111,848.62 |
| Hire of Equipment Debit (Net) (Exhibits 22, 24, 25 and 26) | $ 9,760.49 | $ 8,063.85* | $ 1,696.64 | $ 61,748.60 | $ 10,711.78* | $ 51,036.82 | $ 4,967.56* | $ 47,765.90 |
| Total Deductions | $ 86,843.26 | $ 56,676.72 | $ 143,519.98 | $ 47,284.28* | $ 196,300.05* | $ 243,584.33* | $ 38,264.97* | $ 138,329.32* |
| Balance Available as Return on Value of Property | $ 51,140.72* | $ 71,510.54* | $ 122,651.26* | $ 2,984,431.03 | $ 1,037,014.59 | $ 4,021,445.62 | $ 134,954.80 | $ 4,033,749.16 |
| Value of Property as per Stipulation | $6,274,771.00 | $ 6,392,913.00 | $12,667,684.00 | $44,389,412.00 | $10,657,321.00 | $55,046,733.00 | $3,983,350.00 | $71,697,767.00 |
| Percentage of Return | None | None | None | 6.72% | 9.73% | 7.31% | 3.39% | 5.63% |

EXHIBIT No. 61—Continued

AVERAGE OF THE ABOVE FOUR YEARS' FIGURES, TO REPRESENT AN AVERAGE YEAR OF THE FOUR

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| Operating Revenue (Less Diminutions) | $ 256,198.24 | $ 299,799.73 | $ 555,997.97 | $ 2,537,708.50 | $ 747,683.10 | $ 3,285,391.60 | $ 216,701.71 | $ 4,058,091.28 |
| Operating Expenses | 247,272.61 | 303,508.18 | 550,780.79 | 1,803,421.82 | 537,504.46 | 2,340,926.28 | 192,529.26 | 3,084,236.33 |
| Net Operating Revenue | $ 8,925.63 | $ 3,708.45* | $ 5,217.18 | $ 734,286.68 | $ 210,178.64 | $ 944,465.32 | $ 24,172.45 | $ 973,854.95 |
| Total Deductions (Taxes, Rentals and Hire of Equipment) | 21,710.81 | 14,169.18 | 35,879.99 | 11,821.07* | 49,075.01* | 60,896.08* | 9,566.24* | 34,582.33* |
| Balance Available as Return on Value of Property | $ 12,785.18* | $ 17,877.63* | $ 30,662.81* | $ 746,107.75 | $ 259,253.65 | $ 1,005,361.40 | $ 33,738.69 | $ 1,008,437.28 |
| Value of Property as per Stipulation | $1,568,692.75 | $ 1,598,228.25 | $ 3,166,921.00 | $11,097,353.00 | $ 2,664,330.25 | $13,761,683.25 | $ 995,887.50 | $17,924,441.75 |
| Percentage of Return | None | None | None | 6.72% | 9.73% | 7.31% | 3.39% | 5.63% |

(Continued—1)

*Denotes Red Figures.

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EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND RETURN UPON THE VALUE OF THE PROPERTY FOR THE YEAR ENDED JUNE 30TH, 1913

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| Operating Revenue (Exhibit 22) | $ 264,270.75 | $ 415,183.99 | $ 679,454.74 | $ 2,760,424.84 | $ 775,599.41 | $ 3,536,024.25 | $ 222,691.57 | $ 4,438,170.56 |
| Less Diminution in Revenue if a Two-Cent Passenger Rate and Commission Tariff Freight Rates had been charged (Exhibit 22). | 20,389.53 | 119,875.02 | 140,264.55 | ..... | ..... | ..... | ..... | 140,264.55 |
| Remainder | $ 243,881.22 | $ 295,308.97 | $ 539,190.19 | $ 2,760,424.84 | $ 775,599.41 | $ 3,536,024.25 | $ 222,691.57 | $ 4,297,906.01 |
| Operating Expenses (Exhibit 22) | 218,366.56 | 309,699.69 | 528,066.25 | 1,817,387.64 | 569,641.31 | 2 387,028.95 | 201,475.19 | 3,116,570.39 |
| Net Operating Revenue | $ 25,514.66 | $ 14,390.72* | $ 11,123.94 | $ 943,037.20 | $ 205,958.10 | $ 1,148,995.30 | $ 21,216.38 | $ 1,181,335.62 |
| Deductions: | | | | | | | | |
| Taxes (Exhibit 22) | $ 20,000.87 | $ 28,033.98 | $ 48,034.85 | $ 150,575.40 | $ 41,670.23 | $ 192,245.63 | $ 17,214.22 | $ 257,494.70 |
| Rental Credit (Net) (Exhibit No. 22) | $ 3,032.79* | $ 27,840.56* | $ 30,873.35* | $ 108,339.09 | $ 47,449.40 | $ 155,788.49 | $ 4,005.30 | $ 128,920.44 |
| Add back K. C. F. S. & M. Ry. Rental Charge as Instructed by the Court (Exhibit 20-A) | 3,717.49 | 30,096.13 | 33,813.62 | 104,664.42 | 48,401.88 | 153,066.30 | 20 390.90 | 207,270.82 |
| Net Rental Credit | $ 684.70 | $ 2,255.57 | $ 2,940.27 | $ 213,003.51 | $ 95,851.28 | $ 308,854.79 | $ 24,396.20 | $ 336,191.26 |
| Hire of Equipment Credit (Net) (Exhibit 22) | $ 1,680.85* | $ 4,836.41 | $ 3,155.56 | $ 3,009.18* | $ 4,754.77 | $ 1,745.59 | $ 2,454.88 | $ 7,356.03 |
| Total Deductions | $ 20,997.02 | $ 20,942.00 | $ 41,939.02 | $ 59,418.93* | $ 58,935.82* | $ 118,354.75* | $ 9,636.86* | $ 86,052.59* |
| Balance Available as Return on Value of Property. | $ 4,517.64 | $ 35,332.72* | $ 30,815.08* | $ 1,002,456.13 | $ 264,893.92 | $ 1,267,350.05 | $ 30,853.24 | $ 1,267,388.21 |
| Value of Property as per Stipulation | $1,444,061.00 | $2,006,483.00 | $3,450,544.00 | $10,632.951.00 | $2,964,631.00 | $13,597,582.00 | $1,250,170.00 | $18,298,296.00 |
| Percentage of Return | 0.31% | None | None | 9.43% | 8.94% | 9.32% | 2.47% | 6.93% |

*Denotes Red Figures.

(Continued—2)

EXHIBIT No. 61

EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND RETURN UPON THE VALUE OF THE PROPERTY FOR THE YEAR ENDED JUNE 30TH, 1912

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| Operating Revenue (Exhibit 24) | $ 245,322.88 | $ 421,379.53 | $ 666,702.41 | $ 2,466,397.98 | $ 791,851.49 | $ 3,258,249.47 | $ 217,327.23 | $ 4,142,279.11 |
| Less Diminution in Revenue if a Two-cent Passenger Rate had been charged (Exhibit 24) | | 128,619.68 | 128,619.68 | | | | | 128,619.68 |
| Remainder | $ 245,322.88 | $ 292,759.85 | $ 538,082.73 | $ 2,466,397.98 | $ 791,851.49 | $ 3,258,249.47 | $ 217,327.23 | $ 4,013,659.43 |
| Operating Expenses (Exhibit 24) | 250,936.88 | 291,547.08 | 542,483.96 | $ 1,680,832.81 | 541,206.61 | 2,222,039.42 | 190,327.01 | 2,954,850.39 |
| Net Operating Revenue | $ 5,614.00* | $ 1,212.77 | $ 4,401.23* | $ 785,565.17 | $ 250,644.88 | $ 1,036,210.05 | $ 27,000.22 | $ 1,058,809.04 |
| Deductions: | | | | | | | | |
| Taxes (Exhibit 24) | $ 20,529.32 | $ 19,467.08 | $ 39,996.40 | $ 143,203.83 | $ 36,214.01 | $ 179,417.84 | $ 12,226.60 | $ 231,640.84 |
| Rental Credit (Net) Exhibit 24) | $ 3,157.87* | $ 23,234.64* | $ 26,392.51* | $ 38,352.17 | $ 22,105.31 | $ 60,457.48 | $ 1,928.72* | $ 32,136.25 |
| Add back K. C. F. S. & M. Ry. Rental Charge as Instructed by the Court (Exhibit 24, Page 2) | 3,607.79 | 29,207.95 | 32,815.74 | 101,575.59 | 46,973.46 | 148,549.05 | 19,789.12 | 201,153.91 |
| Net Rental Credit | $ 449.92 | $ 5,973.31 | $ 6,423.23 | $ 139,927.76 | $ 69,078.77 | $ 209,006.53 | $ 17,860.40 | $ 233,290.16 |
| Hire of Equipment Debit (Net) (Exhibit 24) | $ 1,390.83 | $ 2,410.78* | $ 1,019.95* | $ 9,319.59 | $ 4,476.52* | $ 4,843.07 | $ 1,884.18* | $ 1,938.94 |
| Total Deductions | $ 21,470.23 | $ 11,082.99 | $ 32,553.22 | $ 12,595.66 | $ 37,341.28* | $ 24,745.62* | $ 7,517.98* | $ 289.62 |
| Balance Available as Return on Value of Property | $ 27,084.23* | $ 9,870.22* | $ 36,954.45* | $ 772,969.51 | $ 287,986.16 | $ 1,060,955.67 | $ 34,518.20 | $ 1,058,519.42 |
| Value of Property as per Stipulation | $1,669,763.00 | $1,506,942.00 | $3,176,705.00 | $11,180,397.00 | $2,798,931.00 | $13,979,328.00 | $ 976,923.00 | $18,132,956.00 |
| Percentage of Return | None | None | None | 6.91% | 10.29% | 7.59% | 3.53% | 5.83% |

During the year ended June 30th, 1912, the St. Louis and San Francisco Railroad charged in Arkansas for the transportation of Intrastate Freight, the "COURT TARIFF RATES" which were higher than the rates carried in Standard Distance Tariff No. 3. Figures as to the diminution of revenue which would have resulted from the application of Standard Distance Tariff No. 3 Rates in this year have not been compiled, but are not considered material in as much as the Court Tariff Rates did not yield sufficient to pay the operating expenses, taxes, rentals and hire of equipment, chargeable to Intrastate Freight Traffic.

(Continued—3)

*Denotes Red Figures.

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EXHIBIT No. 61

EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND RETURN UPON THE VALUE OF THE PROPERTY FOR THE YEAR ENDED JUNE 30TH, 1911

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| Operating Revenue (Exhibit 25) | $ 263,094.10 | $ 435,863.70 | $ 698,957.80 | $ 2,500,249.20 | $ 761,781.43 | $ 3,262,030.63 | $ 217,929.08 | $ 4,178,917.51 |
| Less Diminution in Revenue if a Two-cent Passenger Rate had been charged (Exhibit 25) | ..... | 115,958.62 | 115,958.62 | ..... | ..... | ..... | ..... | 115,958.62 |
| Remainder | $ 263,094.10 | $ 319,905.08 | $ 582,999.18 | $ 2,500,249.20 | $ 761,781.43 | $ 3,262,030.63 | $ 217,929.08 | $ 4,062,958.89 |
| Operating Expenses (Exhibit 25) | 273,812.51 | 290,445.38 | 564,257.89 | 1,837,309.40 | 510,783.23 | 2,348,092.63 | 182,715.48 | 3,095,066.00 |
| Net Operating Revenue | $ 10,718.41* | $ 29,459.70 | $ 18,741.29 | $ 662,939.80 | $ 250,998.20 | $ 913,938.00 | $ 35,213.60 | $ 967,892.89 |
| Deductions: | | | | | | | | |
| Taxes (Exhibit 25) | $ 21,279.44 | $ 18,499.96 | $ 39,779.40 | $ 145,655.02 | $ 32,524.18 | $ 178,179.20 | $ 11,323.78 | $ 229,282.38 |
| Rental Credit (Net) (Exhibit 25) | $ 3,236.19* | $ 24,292.65* | $ 27,528.84* | $ 76,859.53 | $ 40,051.14 | $ 116,910.67 | $ 2,644.25 | $ 92,026.08 |
| Add back K. C. F. S. & M. Ry. Rental Charge as instructed by the Court (Exhibit 25) | 3,706.00 | 30,003.07 | 33,709.07 | 104,340.77 | 48,252.21 | 152,592.98 | 20,327.84 | 206,629.89 |
| Net Rental Credit | $ 469.81 | $ 5,710.42 | $ 6,180.23 | $ 181,200.30 | $ 88,303.35 | $ 269,503.65 | $ 22,972.09 | $ 298,655.97 |
| Hire of Equipment Debit (Net) (Exhibit 25) | $ 1,788.19 | $ 1,218.02* | $ 570.17 | $ 11,999.74 | $ 2,141.36* | $ 9,858.38 | $ 919.06* | $ 9,509.49 |
| Total Deductions | $ 22,597.82 | $ 11,571.52 | $ 34,169.34 | $ 23,545.54* | $ 57,920.53* | $ 81,446.07* | $ 12,567.37* | $ 59,864.10* |
| Balance Available as Return on Value of Property | $ 33,316.23* | $ 17,888.18 | $ 15,428.05* | $ 686,485.34 | $ 308,918.73 | $ 995,404.07 | $ 47,780.97 | $ 1,027,756.99 |
| Value of Property as per Stipulation | $1,688,797.00 | $1,419,787.00 | $3,108,584.00 | $11,328,083.00 | $2,498,210.00 | $13,826,293.00 | $ 886,132.00 | $17,821,009.00 |
| Percentage of Return | None | 1.26% | None | 6.06% | 12.36% | 7.20% | 5.39% | 5.77% |

During the year ended June 30th, 1911, the St. Louis and San Francisco Railroad charged in Arkansas for the transportation of Intrastate Freight, the "COURT TARIFF RATES" which were higher than the rates carried in Standard Distance Tariff No. 3. Figures as to the diminution of revenue which would have resulted from the application of rates carried in Standard Distance Tariff No. 3 in this year have not been compiled, but are not considered material in as much as the Court Tariff Rates did not yield sufficient to pay the Operating Expenses, Taxes, Rentals and Hire of Equipment chargeable to Intrastate Freight Traffic.

*Denotes Red Figures.

(Continued—4)

EXHIBIT No. 61

EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND RETURN UPON THE VALUE OF THE PROPERTY FOR THE YEAR ENDED JUNE 30TH, 1910

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| Operating Revenue (Exhibit 26) | $ 272,494.77 | $ 362,485.87 | $ 634.980.64 | $ 2,423,761.99 | $ 661,500.07 | $ 3,085,262.06 | $ 208,858.98 | $ 3,929,101.68 |
| Less Diminution in Revenue if a Two-cent Passenger Rate had been charged (Exhibit 26) | | 71 260.87 | 71 260.87 | | | | | 71,260.87 |
| Remainder | $ 272,494.77 | $ 291,225.00 | $ 563,719.77 | $ 2,423,761.99 | $ 661,500.07 | $ 3,085,262.06 | $ 208,858.98 | $ 3,857,840.81 |
| Operating Expenses (Exhibit 26) | 245,974.48 | 322,340.57 | 568,315.05 | 1,878,157.41 | 528,386.71 | 2,406,544.12 | 195,599.35 | 3,170,458.52 |
| Net Operating Revenue | $ 26,520.29 | $ 31,115.57* | $ 4,595.28* | $ 545,604.58 | $ 133,113.36 | $ 678,717.94 | $ 13,259.63 | $ 687,382.29 |
| Deductions: | | | | | | | | |
| Taxes (Exhibit 26) | $ 17,341.00 | $ 17,254.92 | $ 34,595.92 | $ 133,908.14 | 28,589.57 | $ 162,497.71 | $ 10,241.85 | $ 207,335.48 |
| Rental Credit (Net) (Exhibit 26) | $ 2,967.51* | $ 23,200.11* | $ 26,167.62* | $ 51,647.35 | $ 26,682.03 | $ 78,329.38 | $ 256.11 | $ 52,417.87 |
| Add back K. C. F. S. & M. Ry. Rental Charge as Instructed by the Court (Exhibit 26) | 3,430.94 | 27,776.18 | 31,207.12 | 96,596.35 | 44,670.83 | 141,267.18 | 18,819.06 | 191,293.36 |
| Net Rental Credit | $ 463.43 | $ 4,576.07 | $ 5,039.50 | $ 148,243.70 | $ 71,352.86 | $ 219 596.56 | $ 19,075.17 | $ 243,711.23 |
| Hire of Equipment Debit (Net) (Exhibit 26) | $ 4,900.62 | $ 401.36 | $ 5,301.98 | $ 37,420.09 | $ 660.87 | $ 38,080.96 | $ 290.56 | $ 43,673.50 |
| Total Deductions | $ 21,778.19 | $ 13,080.21 | $ 34,858.40 | $ 23,084.53 | $ 42,102.42* | $ 19,017.89* | $ 8,542.76* | $ 7,297.75 |
| Balance Available as Return on Value of Property | $ 4,742.10 | $ 44,195.78* | $ 39,453.68* | $ 522,520.05 | $ 175,215.78 | $ 697,735.83 | $ 21,802.39 | $ 680,084.54 |
| Value of Property as per Stipulation | $1,472,150.00 | $1,459,701.00 | $2,931,851.00 | $11,247,981.00 | $2,395,549.00 | $13,643,530.00 | $ 870,125.00 | $17,445,506.00 |
| Percentage of Return | 0.32% | None | None | 4.64% | 7.31% | 5.11% | 2.51% | 3.90% |

During the year ended June 30th, 1910, the St. Louis and San Francisco Railroad charged in Arkansas for the transportation of Intrastate Freight, the "COURT TARIFF RATES," which were higher than the rates carried in Standard Distance Tariff No. 3. Figures showing the diminution of revenue which would have resulted from the application of Standard Distance Tariff No. 3 have nor been compiled, but are not considered material in as much as the "COURT TARIFF" rates yielded only an amount sufficient to pay Operating Expenses, Taxes, Rentals and Hire of Equipment, and a return of THIRTY-TWO ONE HUNDREDTHS (32-100) OF ONE PER CENT on the value of the property devoted to Intrastate Freight Traffic.

*Denotes Red Figures.

(Continued—5)

EXHIBIT No. 61

EARNINGS AND EXPENSES, TAXES, RENTALS, HIRE OF EQUIPMENT AND RETURN UPON THE VALUE OF THE PROPERTY FOR THE FOUR MONTHS ENDED DECEMBER 31ST, 1907

| | INTRASTATE | | | INTERSTATE | | | Mail and Express | Total Business |
|---|---|---|---|---|---|---|---|---|
| | Freight | Passenger | Total | Freight | Passenger | Total | | |
| Operating Revenue (Exhibit 27-A) | $ 96,041.67 | $ 127,178.76 | $ 223,220.43 | $ 790,258.42 | $ 155,905.10 | $ 946,163.52 | $ 76,602.34 | $ 1,245,986.29 |
| Operating Expenses (Exhibit 27-A) | 100,118.93 | 128,596.01 | 228,714.94 | 634,429.38 | 142,932.73 | 777,362.11 | 62,706.63 | 1,068,783.68 |
| Net Operating Revenue (Exhibit 27-A) | $ 4,077.26* | $ 1,417.25* | $ 5,494.51* | $ 155,829.04 | $ 12,972.37 | $ 168,801.41 | $ 13,895.71 | $ 177,202.61 |
| Deductions: Taxes (Exhibit 27-A) | $ 4,610.00 | $ 4,429.00 | $ 9,039.00 | $ 29,220.00 | $ 4,922.00 | $ 34,142.00 | $ 2,101.00 | $ 45,282.00 |
| Rental Credit (Net) (Exhibit 27-A) | $ 1,185.84* | $ 9,196.79* | $ 10,382.63* | $ 29,961.05 | $ 15,118.40 | $ 45,079.45 | $ 1,370.96 | $ 36,067.78 |
| Add Back K. C. F. S. & M. Ry. Rental Charge as instructed by the Court (Page 2, Exhibit 27-A) | $ 1,331.89 | $ 10,782.71 | $ 12,114.60 | $ 37,498.71 | $ 17,341.21 | $ 54,839.92 | $ 7,305.56 | $ 74,260.08 |
| Net Rental Credit | $ 146.05 | $ 1,585.92 | $ 1,731.97 | $ 67,459.76 | $ 32,459.61 | $ 99,919.37 | $ 8,676.52 | $ 110,327.86 |
| Hire of Equipment Debit (Net) (Exhibit 27-A) | $ 767.38 | $ 369.98 | $ 1,137.36 | $ 4,862.36 | $ 411.12 | $ 5,273.48 | $ 213.64 | $ 6,624.48 |
| Total Deductions | $ 5,231.33 | $ 3,213.06 | $ 8,444.39 | $ 33,377.40* | $ 27,126.49* | $ 60,503.89* | $ 6,361.88* | $ 58,421.38* |
| Balance Available as Return on Value of Property | $ 9,308.59* | $ 4,630.31* | $ 13,938.90* | $ 189,206.44 | $ 40,098.86 | $ 229,305.30 | $ 20,257.59 | $ 235,623.99 |
| One-Third of Value of Property as per Stipulation | $ 532,674.00 | $ 511,665.00 | $1,044,339.00 | $ 3,375,428.00 | $ 568,472.00 | $ 3,943,900.00 | $ 242,540.00 | $ 5,230,779.00 |
| Percentage of Return | None | None | None | 5.61% | 7.05% | 5.81% | 8.35% | 4.50% |

*Denotes Red Figures.

(Concluded—6)

## APPENDIX No. 9

### COMPARISON OF RETURNS ON VALUE OF PROPERTY WITH EQUIPMENT REPAIRS APPORTIONED BETWEEN LINE AND TERMINAL SERVICE ON VARIOUS BASES.

Balance available as Return on Value of Property and Percentage of Return for Intrastate Freight and Passenger business, resulting from the application of the percentages determined by the General Managers of the Western Lines for the division of Locomotive and Freight and Passenger Car Repairs between Line and Terminal Service, compared with the results of applying (1) the Line and Terminal percentages determined by Mr. Symons in his Exhibits 43 and 46, and (2) similar percentages determined by Mr. Simson in his Exhibit "F," Page 3:

YEAR ENDED JUNE 30TH, 1913.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 2) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, P. 2) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | |
| Balance available as return (surplus) | $4,517.64 | $1,470.81 | $19,890.65 |
| Percentage of Return | 0.31% | 0.10% | 1.38% |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (deficit) | $35,332.72 | $31,554.79 | $37,748.38 |
| Percentage of return | None | None | None |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | |
| Balance available as return (deficit) | $30,815.08 | $30,083.98 | $17,857.73 |
| Percentage of return | None | None | None |

YEAR ENDED JUNE 30TH, 1912.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 3) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, P. 3) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | |
| Balance available as return (deficit) | $27,084.23 | $30,561.42 | $ 9,418.27 |
| Percentage of return | None | None | None |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (deficit) | $ 9,870.22 | $ 6,372.64 | $12,144.29 |
| Percentage of return | None | None | None |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | |
| Balance available as return (deficit) | $36,954.45 | $36,934.06 | $21,562.56 |
| Percentage of return | None | None | None |

YEAR ENDED JUNE 30TH, 1911.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 4) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, P. 4) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | |
| Balance available as return (deficit) | $33,316.23 | $37,116.25 | $14,039.83 |
| Percentage of return | None | None | None |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (surplus) | $17,888.18 | $21,333.47 | $15,622.71 |
| Percentage of return | 1.26% | 1.50% | 1.10% |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | (Surplus) |
| Balance available as return (deficit) | $15,428.05 | $15,782.78 | $ 1,582.88 |
| Percentage of return | None | None | 0.05% |

YEAR ENDED JUNE 30, 1910.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 5) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, Page 5) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | |
| Balance available as return (surplus) | $ 4,742.10 | $ 1,343.50 | $22,058.70 |
| Percentage of return | 0.32% | 0.09% | 1.50% |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (deficit) | $44,195.78 | $40,452.58 | $46,710.04 |
| Percentage of return | None | None | None |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | |
| Balance available as return (deficit) | $39,453.68 | $39,109.08 | $24,651.34 |
| Percentage of return | None | None | None |

FOUR MONTHS ENDED DEC. 31, 1907.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 6) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, Page 6) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | |
| Balance available as return (deficit) | $ 9,308.59 | $10,630.78 | $ 2,260.22 |
| Percentage of return | None | None | None |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (deficit) | $ 4,630.31 | $ 3,354.13 | $ 5,633.36 |
| Percentage of return | None | None | None |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | |
| Balance available as return (deficit) | $13,938.90 | $13,984.91 | $ 7,893.58 |
| Percentage of return | None | None | None |

FOUR YEARS ENDED JUNE 30, 1913, 1912, 1911 AND 1910 COMBINED.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 1) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, Page 1) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | (Surplus) |
| Balance available as return (deficit) | $51,140.72 | $64,863.36 | $18,491.25 |
| Percentage of return | None | None | 0.29% |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (deficit) | $71,510.54 | $57,046.54 | $80,980.00 |
| Percentage of return | None | None | None |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | |
| Balance available as return (deficit) | $122,651.26 | $121,909.90 | $62,488.75 |
| Percentage of return | None | None | None |

AVERAGE OF THE ABOVE FOUR YEARS' FIGURES TO REPRESENT AN AVERAGE YEAR OF THE FOUR.

| | On Basis of Gen. Mgrs. Percentages (Exh. 61, Page 1) | On Basis of Symons Percentages (Results found in Exh. 51, P. 2, Carried to Exh. 61, Page 1) | On Basis of Simson's Percentages (Compiled from data in the Record) |
|---|---|---|---|
| INTRASTATE FREIGHT: | | | |
| Balance available as return (deficit) | $12,785.18 | $16,215.84 | $ 4,622.81 (Surplus) |
| Percentage of return | None | None | 0.29% |
| INTRASTATE PASSENGER: | | | |
| Balance available as return (deficit) | $17,877.63 | $14,261.63 | $20,245.00 |
| Percentage of return | None | None | None |
| INTRASTATE FREIGHT AND PASSENGER COMBINED: | | | |
| Balance available as return (deficit) | $30,662.81 | $30,477.47 | $15,622.19 |
| Percentage of return | None | None | None |

In connection with the Balance available as return (on the basis of Simson's percents) in the amount of $18,491.25 for Intrastate Freight for the combined four years ended June 30, 1913, 1912, 1911 and 1910, it should be stated that in three of the years, namely, 1912, 1911 and 1910, the Intrastate Freight Revenues were based on Court Tariff rates, which were higher than the rates carried in Standard Distance Tariff No. 3. Figures as to the diminution of revenue which would have resulted from the application of Standard Distance Tariff No. 3 rates in those years were not compiled—see foot notes on pages 3, 4 and 5 of Exhibit 61, covering the years ended June 30, 1912, 1911 and 1910.

APPENDIX No. 10—Sheet 1.

In the following tables there is reflected a re-assignment of the expenses giving effect to the percentages determined by Mr. Simson, in defendant's Exhibit "F" for the division of Equipment Repairs between line and terminal service, and the so-called "direct charge" basis (i. e., assigned charges in Accounts 80 to 89, omitting Account 81), used by the Interstate Commerce Commission in the Western Passenger Fares Case, for the division of Maintenance of Way Expenses between the freight and passenger services; also a re-assignment of the Equipment Values, which were affected by the re-assignment of Equipment Repairs, the apportionment of Equipment Values having followed the apportionment of Equipment Repairs.

VALUE OF PROPERTY ASSIGNABLE TO INTRASTATE FREIGHT AND PASSENGER TRAFFIC COMPARED WITH THE VALUE ON WHICH THE ACTUAL NET INCOME WAS EQUAL TO 6% AND 7%, YEARS ENDING JUNE 30, 1913, 1912, 1911, AND 1910, AND FOR THE FOUR MONTHS ENDING DECEMBER 31, 1907.

| Year Ending June 30th | | Actual Net Income | Value on which the Actual Net Income was Equal to | | Value of Property Assignable to Intrastate Traffic | Value Devoted to Intrastate Traffic on which no Return was Earned Whatever | |
|---|---|---|---|---|---|---|---|
| | | | 6% | 7% | | 6% | 7% |
| 1913 | Intrastate Freight Traffic | $ 17,772.49 | $ 296,208.17 | $ 253,892.71 | $1,326,658.84 | $1,030,450.67 | $1,072,766.13 |
| | Intrastate Passenger Traffic | *22,758.92 | ..... | ..... | 2,014,508.93 | 2,014,508.93 | 2,014,508.93 |
| 1912 | Intrastate Freight Traffic | $ *11,852.36 | ..... | ..... | $1,534,011.27 | $1,534,011.27 | $1,534,011.27 |
| | Intrastate Passenger Traffic | 1,966.58 | 32,776.33 | 28,094.00 | 1,512,969.77 | 1,480,193.44 | 1,484,875.77 |
| 1911 | Intrastate Freight Traffic | $ *16,695.81 | ..... | ..... | $1,551,497.80 | $1,551,497.80 | $1,551,497.80 |
| | Intrastate Passenger Traffic | 29,680.27 | $ 494,671.16 | $ 424,003.86 | 1,425,466.15 | 930,794.99 | 1,001,462.29 |
| 1910 | Intrastate Freight Traffic | $ 19,672.75 | $ 327,879.16 | $ 281,039.29 | $1,352,464.20 | $1,024,585.04 | $1,071,424.91 |
| | Intrastate Passenger Traffic | *31,108.76 | ..... | ..... | 1,465,539.80 | 1,465,539.80 | 1,465,539.80 |
| Four Months Ending Dec. 31, 1907: | | | | | | | |
| | Intrastate Freight Traffic | $ *3,231.37 | ..... | ..... | $1,468,103.40 | $1,468,103.40 | $1,468,103.40 |
| | Intrastate Passenger Traffic | 590.69 | $ 9,844.83 | $ 8,438.43 | 1,541,134.98 | 1,541,134.98 | 1,541,134.98 |

*Deficit.



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APPENDIX No. 10—Sheet 2.

NET INCOME ON INTRASTATE FREIGHT AND PASSENGER TRAFFIC NECESSARY TO PAY A RETURN OF 6% AND 7% ON VALUE OF PROPERTY COMPARED WITH ACTUAL NET INCOME EARNED, YEARS ENDING JUNE 30, 1913, 1912, 1911, AND 1910, AND THE FOUR MONTHS ENDING DECEMBER 31, 1907.

| Year Ending June 30th | | Value of Property Assignable to Intrastate Traffic | What Net Income Should be to Yield a Return of 6% | What Net Income Should be to Yield a Return of 7% | What Net Income Actually Was | Difference Between Actual Net Income and Net Income on the Basis of 6% | Difference Between Actual Net Income and Net Income on the Basis of 7% |
|---|---|---|---|---|---|---|---|
| 1913 | Intrastate Freight Traffic | $1,326,658.84 | $ 79,599.53 | $ 92,866.12 | $ 17,772.49 | $ 61,827.04 | $ 75,093.63 |
| | Intrastate Passenger Traffic | 2,014,508.93 | 120,870.54 | 141,015.63 | *22,758.92 | 143,629.46 | 163,774.55 |
| 1912 | Intrastate Freight Traffic | $1,534,011.27 | $ 92,040.68 | $ 107,380.79 | $ *11,852.36 | $ 103,893.04 | $ 119,233.15 |
| | Intrastate Passenger Traffic | 1,512,969.77 | 90,778.19 | 105,907.88 | 1,966.58 | 88,811.61 | 103,941.30 |
| 1911 | Intrastate Freight Traffic | $1,551,497.80 | $ 93,089.87 | $ 108,604.85 | $ *16,695.81 | $ 109,785.68 | $ 125,300.66 |
| | Intrastate Passenger Traffic | 1,425,466.15 | 85,527.97 | 99,782.63 | 29,680.27 | 55,847.70 | 70,102.36 |
| 1910 | Intrastate Freight Traffic | $1,352,464.20 | $ 81,147.85 | $ 94,672.49 | $ 19,672.75 | $ 61,475.10 | $ 74,999.74 |
| | Intrastate Passenger Traffic | 1,465,539.80 | 87,932.39 | 102,587.79 | *31,108.76 | 119,041.15 | 133,696.55 |
| Four Months Ending Dec. 31, 1907: | | | | | | | |
| | Intrastate Freight Traffic | $ 489,367.80 | $ 29,362.07 | $ 34,255.75 | $ *3,231.37 | $ 32,593.44 | $ 37,487.12 |
| | Intrastate Passenger Traffic | 513,711.66 | 30,822.70 | 35,959.82 | 590.69 | 30,232.01 | 35,369.13 |

*Deficit.

RETURN USING DIRECT CHARGE BASIS FOR APPORTIONING COMMON LINE MAINTENANCE OF WAY EXPENSES BETWEEN FREIGHT AND PASSENGER, AND DEFENDANTS' BASIS FOR APPORTIONING MAINTENANCE OF EQUIPMENT EXPENSE BETWEEN LINE AND TERMINAL.

APPENDIX No. 10—Sheet 3.

PERCENTAGE OF RETURN EARNED BY INTRASTATE FREIGHT AND PASSENGER TRAFFIC ON VALUE OF PROPERTY.

| | Year Ending June 30th | | | | Four Years Combined | Average of Four Years Combined | Four Months Ending Dec. 31, 1907 |
|---|---|---|---|---|---|---|---|
| | 1913 | 1912 | 1911 | 1910 | | | |
| Intrastate Freight Traffic: | | | | | | | |
| Net Income applicable to return on value: | | | | | | | |
| Balance | $ 17,772.49 | | | $ 19,672.75 | $ 8,897.07 | $ 2,224.27 | |
| Deficit | | $ 11,852.36 | $ 16,695.81 | | | | $ 3,231.37 |
| Percentage of return on value. | 1.34% | None | None | 1.45% | 0.16% | 0.16% | None |
| Intrastate Passenger Traffic: | | | | | | | |
| Net income applicable to return on value: | | | | | | | |
| Balance | | $ 1,966.58 | $ 29,680.27 | | | | $ 590.69 |
| Deficit | $ 22,758.92 | | | $ 31,108.76 | $ 22,220.83 | $ 5,555.21 | |
| Percentage of return on value. | None | 0.13% | 2.08% | None | None | None | 0.11% |
| Intrastate Freight and Passenger Traffic Combined: | | | | | | | |
| Net income applicable to return on value: | | | | | | | |
| Balance | | | $ 12,984.46 | | | | |
| Deficit | $ 4,986.43 | $ 9,885.78 | | $ 11,436.01 | $ 13,323.76 | $ 3,330.94 | $ 2,640.68 |
| Percentage of return on value. | None | None | 0.44% | None | None | None | None |



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## APPENDIX No. 11.

VALUE OF PROPERTY ASSIGNABLE TO INTRASTATE FREIGHT AND PASSENGER TRAFFIC COMPARED WITH THE VALUE ON WHICH THE ACTUAL NET INCOME WAS EQUAL TO A 6% AND 7% RETURN FOR THE YEARS ENDING JUNE 30, 1913, 1912, 1911 AND 1910, AND FOUR MONTHS ENDING DECEMBER 31, 1907.

| Year Ending June 30th | | Net Income (Exh. 61) | Value on which the Actual Net Income was Equal to | | Value of Property Assignable to Intrastate Traffic (Exh. 61) | Value Devoted to Intrastate Traffic on which no Return was Earned Whatever | |
|---|---|---|---|---|---|---|---|
| | | | 6% | 7% | | 6% | 7% |
| 1913 | Intrastate Freight Traffic | $ 4,517.64 | $ 75,294.00 | $ 64,537.71 | $1,444,061.00 | $1,368,767.00 | $1,379,523.29 |
| | Intrastate Passenger Traffic | * 35,332.72 | ..... | ..... | 2,006,483.00 | 2,006,483.00 | 2,006,483.00 |
| 1912 | Intrastate Freight Traffic | *$27,084.23 | ..... | ..... | $1,669,763.00 | $1,669,763.00 | $1,669,763.00 |
| | Intrastate Passenger Traffic | * 9,870.22 | ..... | ..... | 1,506,942.00 | 1,506,942.00 | 1,506,942.00 |
| 1911 | Intrastate Freight Traffic | *$33,316.23 | ..... | ..... | $1,688,797.00 | $1,688,797.00 | $1,688,797.00 |
| | Intrastate Passenger Traffic | 17,888.18 | $298,136.33 | $255,545.43 | 1,419,787.00 | 1,121,650.67 | 1,164,241.57 |
| 1910 | Intrastate Freight Traffic | $ 4,742.10 | $ 79,035.00 | $ 67,744.29 | $1,472,150.00 | $1,393,115.00 | $1,404,405.71 |
| | Intrastate Passenger Traffic | * 44,195.78 | ..... | ..... | 1,459,701.00 | 1,459,701.00 | 1,459,701.00 |
| Four Months Ending Dec. 31, 1907: | | | | | | | |
| | Intrastate Freight Traffic | *$ 9,308.59 | ..... | ..... | $1,598,022.00 | $1,598,022.00 | $1,598,022.00 |
| | Intrastate Passenger Traffic | * 4,630.31 | ..... | ..... | 1,534,995.00 | 1,534,995.00 | 1,534,995.00 |

*Deficit.

## APPENDIX No. 12.

NET INCOME ON INTRASTATE FREIGHT AND PASSENGER TRAFFIC NECESSARY TO PAY A RETURN OF 6% AND 7% ON VALUE OF PROPERTY, COMPARED WITH ACTUAL NET INCOME EARNED, YEARS ENDING JUNE 30, 1913, 1912, 1911 AND 1910, AND FOUR MONTHS ENDING DECEMBER 31, 1907.

| Year Ending June 30th | | Value of Property Assignable to Intrastate Traffic (Exh. 61) | What Net Income Should Be to Yield a Return of | | What Net Income was (Exh. 61) | Difference between Actual Net Income and Net Income on the Basis of | |
|---|---|---|---|---|---|---|---|
| | | | 6% | 7% | | 6% | 7% |
| 1913 | Intrastate Freight Traffic | $1,444,061.00 | $ 86,643.66 | $101,084.27 | $ 4,517.64 | $ 82,126.02 | $ 96,566.63 |
| | Intrastate Passenger Traffic | 2,006,483.00 | 120,388.98 | 140,453.81 | * 35,332.72 | 155,721.70 | 175,786.53 |
| | Total | $3,450,544.00 | $207,032.64 | $241,538.08 | *$30,815.08 | $237,847.72 | $272,353.16 |
| 1912 | Intrastate Freight Traffic | $1,669,763.00 | $100,185.78 | $116,883.41 | *$27,084.23 | $127,270.01 | $143,967.64 |
| | Intrastate Passenger Traffic | 1,506,942.00 | 90,416.52 | 105,485.94 | * 9,870.22 | 100,286.74 | 115,356.16 |
| | Total | $3,176,705.00 | $190,602.30 | $222,369.35 | *$36,954.45 | $227,556.75 | $259,323.80 |
| 1911 | Intrastate Freight Traffic | $1,688,797.00 | $101,327.82 | $118,215.79 | *$33,316.23 | $134,644.05 | $151,532.02 |
| | Intrastate Passenger Traffic | 1,419,787.00 | 85,187.22 | 99,385.09 | 17,888.18 | 67,299.04 | 81,496.91 |
| | Total | $3,108,584.00 | $186,515.04 | $217,600.88 | *$15,428.05 | $201,943.09 | $233,028.93 |
| 1910 | Intrastate Freight Traffic | $1,472,150.00 | $ 88,329.00 | $103,050.50 | $ 4,742.10 | $ 83,586.90 | $ 98,308.40 |
| | Intrastate Passenger Traffic | 1,459,701.00 | 87,582.06 | 102,179.07 | * 44,195.78 | 131,777.84 | 146,374.85 |
| | Total | $2,931,851.00 | $175,911.06 | $205,229.57 | *$39,453.68 | $215,364.74 | $244,683.25 |
| | Four Months Ending Dec. 31, 1907: | | | | | | |
| | Intrastate Freight Traffic | $ 532,674.00 | $ 31,960.44 | $ 37,287.18 | *$ 9,308.59 | $ 41,269.03 | $ 46,595.77 |
| | Intrastate Passenger Traffic | 511,665.00 | 30,699.90 | 35,816.55 | * 4,630.31 | 35,330.21 | 40,446.86 |
| | Total | $1,044,339.00 | $ 62,660.34 | $ 73,103.73 | *$13,938.90 | $ 76,599.24 | $ 87,042.63 |

*Deficit.



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JAMES D. MAHER

NO. [redacted] 252

IN THE

# Supreme Court of the United States

J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS, *Appellants,*

*vs.*

SIDNEY E. BOYLE, EXECUTRIX OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, *Appellees.*

## ABSTRACT AND BRIEF ON BEHALF OF THE APPELLANTS

JOSEPH M. HILL
*Special Counsel for the State of Arkansas*

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NO. 648

**IN THE**

# Supreme Court of the United States

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J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS, *Appellants,*

*vs.*

SIDNEY E. BOYLE, EXECUTRIX OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY, *Appellees.*

---

## ABSTRACT AND BRIEF ON BEHALF OF THE APPELLANTS

---

### STATEMENT OF THE CAUSE.

*The Issues.*

Boyle, a stockholder of the St. Louis & San Francisco Railroad Company, brought a suit in chancery in the United States District Court for the Eastern District of Arkansas against said Railroad Company and representative shippers and passengers, and the Railroad Commission of Arkansas, alleging that the freight rates promulgated by the Railroad Commission in the tariff

known as Standard Distance Tariff No. 3, and passenger rates enacted by the General Assembly of Arkansas, of 1907, were confiscatory. (R. pp. 1-21.)

The answer denied all of the allegations of the complaint, and averred the rates were compensatory, and set forth many other reasons why the rates should not be enjoined. (R. pp. 27-33.)

To this replication was filed. (R. p. 41.)

The allegations in the complaint, answer, and replication in this case were identical with those in the case of Allen, et al., Railroad Commissioners, vs. St. Louis, Iron Mountain & Southern Railway Company, and Allen, et al., Commissioners, vs. St. Louis Southwestern Railroad Company, which were determined by this Court June 16th, 1913. (Allen vs. St. Louis, Iron Mountain & Southern Railway Company, 230 U. S., 553.)

In view of the identity of the pleadings in these cases it is not thought that a further abstract of them is needed.

*History of the Case*

An application for temporary injunction against the said freight and passenger rates was heard by Honorable Willis VanDeventer, then an United States Circuit Judge for the Eighth Judicial Circuit.

On September 3rd, 1908, Judge VanDeventer granted the temporary restraining order against the enforcement of Standard Distance Freight Tariff No. 3, and the passenger rate of two cents per mile enacted by the General Assembly, upon condition that the plaintiff give a bond in the sum of Two Hundred Thousand Dollars conditioned to keep a correct account showing the difference charged by the Railroad Company for carriage of persons and freight and the inhibited rates, and further conditioned that if it should finally be decided that so much of the order as inhibited the enforcement of existing rates should not have been made that the railway defendant, within a reasonable time, to be fixed by the court, refund in every instance to the party entitled thereto the excess of charge over what would have been charged had the inhibited rate been applied, together with lawful interest and damages; other appropriate conditions were made in said order. (R. pp. 34-36.)

An injunction bond in the terms prescribed by the Circuit Judge was filed and approved. (R. pp. 36-39.)

On June 14th, 1909, there was an order entered by consent wherein this suit was dismissed without liability upon the injunction bond unless it be reinstated as thereinafter provided; that during one year the "court tariff" which was a tariff made effective by the order of the United States

District Court, of June 2nd, 1909, should be effective upon said road; that there should be a two and one-half cent passenger rate on said road during one year; that the railroad should make monthly reports to the Railroad Commission of earnings and expenses, and divide the same between states and between freight and passenger business upon a form agreed upon and made part of the order; that at the end of one year either party might reinstate the suit and proceed with the litigation as though it had not been dismissed. It was expressly stipulated that in the event the suit was reinstated and proceeded to a final hearing and it was finally adjudged that the temporary injunction against the freight and passenger rates be dissolved the complainant, the defendant Railroad Company, and injunction bond should be liable for all charges for freight and passengers carried above the rates in Standard Distance Tariff No. 3 and in the two-cent passenger Act of 1907 to the same effect as if the suit had not been dismissed, and as if the rates in the court tariff were voluntarily made by the defendant Railroad Company. (R. pp. 42-50.)

On the 13th of October, 1910, the complainant moved for an order to be entered pursuant to the order theretofore made asking leave of the court to reinstate this cause and the court granted the motion and the cause was ordered reinstated and to proceed in regular order. (R. pp. 53-54.)

The original plaintiff died and the cause was reinstated in the name of his executrix, the present party, Sydney E. Boyle. Various changes were made in the personnel of the Railroad Commission, and the successors of prior commissioners were substituted from time to time. (R. pp. 55-56.)

On June 26th, 1911, an order was entered continuing this cause pending the decision of the Supreme Court of the United States in the case of St. Louis, Iron Mountain and Southern Railway Company vs. Robert P. Allen, et al. (R. p. 56.)

On July 23rd, 1913, the Railroad Commissioners filed a motion to dissolve the temporary injunction and alleged: That the temporary injunction was continued in this cause by Honorable Jacob Trieber, District Judge, imposing conditions for the continuance thereof by requiring a reduction of freight rates pending the litigation, which reduction was made, and in lieu of the rates in force after the first injunction was granted the "court tariff" was made applicable on all intrastate freight shipped within the State of Arkansas and continues now in effect; that said court tariff was formed under the direction of the District Judge; that

the tariff was intended to produce 33 1-3 per cent income over that produced by Standard Freight Distance Tariff No. 3. That similar injunctions were granted, and similar conditions imposed thereupon on behalf, of the St. Louis, Iron Mountain & Southern Railway Company and St. Louis Southwestern Railroad Company. That this case was continued until the Supreme Court of the United States finally determined the Iron Mountain and Southwestern Railway cases. That the Supreme Court of the United States on June 16th, 1913, reversed the decrees in said St. Louis, Iron Mountain & Southern and Southwestern Railway cases and directed that the complaints of said railways be dismissed, which was done by the District Court on the 19th of July, 1913.

That notice was given to the complainant and the defendant Railroad Company that these Petitioners would move for a dissolution of the temporary injunction.

The petitioners stated that the temporary injunction was secured upon evidence which alleged that the revenue produced from the freight and passenger rates enforced by the State of Arkansas were confiscatory, and that they used this method of making a calculation to show that the revenue produced a return on the property which was confiscatory, to-wit:

The property used by the railroad in Arkansas was divided between interstate and intrastate traffic by taking the gross revenue derived from each and dividing the property according to the proportion they bore to each other.

That the exepenses were divided by the same method between intrastate and interstate.

In addition thereto there were numerous affidavits filed by railroad officials testifying that intrastate traffic was more expensive than interstate. That calculations were made upon a basis of 25 per cent extra cost of intrastate passenger traffic, and 100 per cent extra cost of intrastate freight traffic. That the Supreme Court of the United States had in said Rate Cases determined that said revenue basis of dividing the property and expenses was unsound and unreliable and that the opinion evidence to the effect that intrastate passenger and freight traffic was more expensive than interstate freight and passenger traffic was too uncertain and vague to be the basis of finding that the rates prescribed by the State were confiscatory.

It was further alleged that the injunction was obtained in this cause solely upon the class of testimony condemned by the Supreme Court of the United States in said State Rate Cases and that the Honorable Willis VanDeventer, who granted the temporary injunction herein as a member of

the Supreme Court of the United States concurred in the opinion in said State Rate Cases which condemned as insufficient and unreliable the class of testimony upon which the temporary injunction was obtained.

An analysis was then made of the affidavits upon which the temporary injunction was granted and it was alleged that said affidavits showed that the railroad was earning between seven and eight per cent upon its property invested in Arkansas.

It was alleged that the temporary injunction and the order of the court continuing it upon condition authorized the defendant railroad to enforce the "court tariff" which was supposed to represent 33 1-3 per cent more revenue than Standard Distance Tariff No. 3, but which in fact the petitioners are informed and believe represents about 25 per cent more; that the continuance of the temporary injunction permitted the defendant road to charge more than two cents per mile. It was therefore prayed that in view of these facts the temporary injunction be dissolved. (R. pp. 57-60.)

On October 17th, 1913, an order of court was made extending the time of the complainant to begin taking proof until January 5th, 1914, on condition that the defendant railroad put in force the tariffs for freight and passengers then or thereafter established by the Railroad Commission of Arkansas, and in all other respects comply with all legal orders of the Commission except as they may be relieved by orders of this or any other court having competent jurisdiction in an independent proceedings instituted therefor.

This order was without prejudice to complainants' rights under the temporary injunction if upon final hearing the injunction was made perpetual. (R. p. 60.)

Subsequent orders of the court extended the time for the plaintiff to begin taking his testimony until June 15th, 1914. (R. p. 61.)

On November 27th, 1914, the plaintiff filed a supplemental bill. It was alleged therein that there had been no material change in the mileage of the railroad. It was alleged that during the entire period of time from institution of the original proceedings to this time the rates provided in Standard Freight Distance Tariff No. 3 and the Statute of 1907 have not and do not allow the railroad company any reasonable return on the investment in property used in operating said railroad in the State of Arkansas. It reiterated the allegations of the original bill that the rates prescribed by the statute and Commission produced a return which was confiscatory. (R. pp. 62-63.)

The Railroad Commission filed answer to the supplemental bill in which it was denied that the rates prescribed were confiscatory and alleged further the evidence upon which the plaintiff procured its preliminary injunction was insufficient to entitle it to have it granted; that its statement of expenses was erroneously made out and included interest charges, and in some instances expenses of property not in Arkansas, and rent of leased lines, and included some expenses in Missouri, Kansas, and Oklahoma, and the separation of state and interstate property and expenses was made upon the revenue theory, which is unsound, and which does not reflect the true condition of affairs. It asks that the original answer so far as applicable be adopted and this be taken in addition thereto in answer to the supplemental bill. (R. p. 64.)

On April 10th, 1915, the court rendered final decree, finding that the rates were confiscatory and enjoining their application by the railroad and the Railroad Commission. (R. pp. 65-66.)

The matter of costs was in the final decree left open, but subsequently a decree was entered on June 26th, 1915, adjudging the costs against the Railroad Commissioners personally. (R. p. 933.)

By appropriate orders the respective shippers and passengers, who were defendants, after they had been invited to join in the prayer for appeal and declined to do so, were severed from the cause and the Railroad Commissioners authorized to appeal as though all parties to the record were joined therein. (R. p. 933.)

On petition of both parties the court made an order that the testimony of Frank Nay, T. A. Hamilton, W. A. Symons, J. E. Frates, L. S. Mayer, and L. N. Simson be reproduced in the exact words of said witnesses. "This order is made, as in the opinion of the court, a reduction of their testimony to narrative form would not present the facts accurately." (R. pp. 932-933.)

An assignment of errors was filed; appeal bond given and approved; and appeal to this court prosecuted in due form and apt time. (R. pp. 934-940.)

## BRIEF SUMMARY OF THE EVIDENCE.

*The Opposing Statistics.*

The temporary injunction was granted in 1908 upon statistical evidence presenting the condition of the railroad receipts and expenses for the four months ended December 31st, 1907. These months were taken as a test period to prove that the rates sought to be enjoined were confiscatory.

In the application for preliminary injunction the value of the property as assessed by the State of Arkansas multiplied by two was taken as the value of the property. It was developed in the evidence in this cause (and also in the Iron Mountain and St. Louis Southwestern cases heretofore determined by this court) that property is assessed in Arkansas on the basis of 50 per cent of its true value.

This case was tried upon the statistics of the railroad for the four months ended December 31st, 1907. Exhibits were introduced by each side showing the relative contentions as to its condition as of said period, and each side also filed exhibits of subsequent years for the purpose of throwing light upon the condition of affairs of the test period, and also for the purpose of showing the condition of the affairs of the road in subsequent years, and as reflecting, or as unreflecting the condition of affairs in 1907, as shown by the condition in subsequent years.

On the trial of the case testimony was introduced by the plaintiff as to the value of the railroad property, and exhibits were filed by it upon said subject. Subsequently an agreement was made, near the close of the testimony, to use double the assessed value of 1907 as the real value of the railroad property at that time, and the value of the property of subsequent years to be increased by the Additions and Betterments of each year subsequent thereto. These amounts were ascertained and agreed to. (R. pp. 906-907.)

The stipulation places the value of all of the property of the railroad company in the State of Arkansas used in its operations, for the calendar year of 1907, at $15,692,338.00. The Additions and Betterments for each fiscal year beginning with June 30th, 1908, and ending June 30th, 1913, are set out and found at page 907.

In other words, to obtain the value of the property at any of said years subsequent to 1907, the valuation of that year, to-wit: $15,692,338.00 is to be taken and to it added the Additions and Betterments of each year thereafter up to the year where the valuation is sought.

The exhibits of the railroad company which show computations of return upon property, except Exhibit 61, were all made prior to this stipulation and are made upon the engineer's estimate of the value of the property.

The court in his opinion stated that the agreed value was 27 per cent less than that claimed by the company as shown by the evidence of its chief engineer before the stipulation as to value was made. (R. p. 930.)

Attention is called to these facts at this time so that the court in considering the evidence and the exhibits will not

be misled by the low return shown in many of the company's exhibits, as these exhibits are made upon an estimated valuation 27 per cent greater than that agreed upon as the valuation to be used in this case.

The State's exhibits were all made upon the basis of doubling the assessed valuation. There is no controversy that the values used in the State's exhibits are the values agreed upon, nor is there any controversy that the value used in the Railroad's exhibit 61 is the value agreed upon.

While out of the order in which the evidence was introduced, yet it is thought it will be helpful to the court in advance of considering the evidence to see the financial condition of the road in Arkansas as presented in the opposing exhibits.

The railroad company's exhibit 61, its last word on the condition of its affairs in Arkansas during the four month period of inquiry and for four years subsequent thereto shows the following results: For the four months test period it shows a return from all business in the State—intrastate freight and passenger, interstate freight and passenger, and mail and express—of 4.50 per cent; for the fiscal year ending June 30th, 1913, it shows a return upon all of its business upon its property in the State of 6.93 per cent, and upon the average of the four years ending June 30th, 1910, 1911, 1912, and 1913, 5.63 per cent.

This exhibit is found beginning at page 2209, and shows each of these periods in detail. It contains two classes of errors:

(a) From the operating revenue is deducted a diminution in revenue as if a two-cent passenger rate and the Commission's freight tariff had been charged.

In other words, these exhibits take from the actual intrastate revenue of each of said periods (except 1907) the difference between the revenues actually received and the revenue which the railroad estimates it would have received had the two-cent passenger rate and the Commission's freight rate been in force during these periods. This supposes that every passenger who travelled under the three-cent or two-and-one-half-cent rate would have travelled the same distance and no more under the two-cent rate, and that no more travel would have occurred under the two-cent rate than did occur under the three- or two-and-one-half-cent rates, and likewise estimates that the freight which actually moved under the rates in force during these periods would have moved, no more and no less, had the Commission's Freight Tariff been in

effect. (R. pp. 102-103.) Attention will be given to this contention in the argument. It is simply stated here.

(b) The figures used by the railroad company in this exhibit for 1907 are the same figures which the railroad used in its exhibits 27A and 28. These exhibits, 27A and 28, were filed to correct mistakes which had occurred in Exhibit 27, its final summary up to that time. It is clearly shown in the evidence that these figures in certain instances therein pointed out are erroneous, or what would be more accurate, they needed adjustment and revision, and in some instances reduction to better bases to make them reflect the actual condition of affairs.

The differences in the actual figures are developed in the following exhibits:

Exhibit V adjusts the freight revenue; Exhibit W corrects certain errors in the maintenance of equipment expenses. Exhibit X corrects some errors in the transportation expenses. The defendant's statement of the condition of the railroad as opposed to that which is set up as the railroad's, is found in exhibit Y, page 2257. This exhibit makes a statement of the available income and return on the value of the property for the four months ended December 31st, 1907, adjusted by said corrections. It substitutes the figures in Exhibit V for the freight earnings; it substitutes the figures in Exhibit W for the maintenance of equipment expenses; it substitutes the figures in Exhibit X for the transportation expenses, and in all other respects takes the Company's exhibits for each item of earning and expenses, taxes, etc.

This Exhibit shows a net return upon the property from all classes of business in the State of 6.53 per cent for said period. The State contended that this four months period was not a normal period, and introduced numerous exhibits showing the abnormality of this four months period, comparing with later periods and filed exhibits bringing said period to a normal level.

According to the State's exhibits the return of 6.53 per cent, which is the actual return upon the property, on an averaging basis is 1.02 per cent below the normal. In other words, if this four months period is brought to a normal it is shown that the return upon the property from all the business in Arkansas was 7.55 per cent.

This was shown in Exhibit "O." There was a mistake in the original Exhibit "O" and in lieu of it was filed Exhibit "O 1," which is found at page 2295 (the original Exhibit "O" not being brought forward, as Exhibit "O 1" was substituted for it). The correction of the error reduced the return from 7.55 per cent to 7.51 per cent.

These matters will be set forth more fully in the argument. Attention is merely called at this time to the contention, which it will be demonstrated the evidence sustains, that this road was during the test period of four months ended December 31st, 1907, actually earning 6.53 per cent on its property in Arkansas and that the net revenue available during that period for return upon the property was below the normal, and that adjusting the actual figures of this abnormal four months to a normal condition shows that the road was actually earning during the period of inquiry 7.51 per cent upon its property, and this too under the enjoined rates.

*The Witnesses.*

The case was tried upon the testimony of six witnesses, Mr. T. A. Hamilton, Mr. Frank Nay, Mr. J. A. Frates, Mr. W. A. Symons, Mr. L. S. Mayer, and Mr. L. N. Simson.

Mr. Symons testified to one issue alone and that to the relative proportion between line and terminal of locomotive, freight car and passenger car repairs. Subsequently he was in rebuttal called by the railroad upon some questions of tractive power of locomotives and some other operating conditions relating to the engine ton mile as the basis for dividing common expenses between freight and passenger traffic.

Mr. Frates was called by the railroad on certain operating conditions bearing upon the value of the engine ton mile as a proper basis for dividing common expenses between freight and passenger traffic.

These two witnesses reached only the subjects named.

The plaintiff's case was made out by the testimony of Mr. Hamilton and Mr. Nay with some supporting testimony on the one item referred to, by Mr. Symons. It may be that the plaintiff will contend also that it has some support from Mr. Frates for the engine ton mile basis.

As the plaintiff introduced Mr. Frates as a witness it may be assumed that the plaintiff so regards his testomony, but it will be shown in argument hereafter that Mr. Frates' testimony sustains the contention of the State that the engine ton mile is not a proper basis for the purpose for which it was used.

Be that as it may, Mr. Symons and Mr. Frates were witnesses only upon two points in the formula which was used by the railroads in this case to divide the expenses between state and interstate, apportion the revenue between state and interstate, and apportion the property between state and interstate.

Mr. Symons was a mechanical engineer of much experience. Mr. Frates was a Superintendent of the Frisco Road, a man of large operating experience. As the plaintiff makes out its case wholly by the testimony of Mr. Nay and Mr. Hamilton (aside from some support upon the part of the two men referred to), it is important to examine the qualification of these gentlemen on the issues involved.

Mr. Hamilton occupies the position of Supervisor of Efficiency of the defendant railroad. His experience in railroad service began when he was a lad of fourteen years, as messenger boy; then he served as junior clerk in the office of an Assistant General Manager; then he was a clerk in a freight accounting department in handling way-bills, preparation of records for verification to agents' accounts; then he was the assistant to the freight accountant in a local freight office; then he served as a "general handy man" for the auditor of freight receipts in filling positions of men temporarily incapacitated. His service covered every phase of railroad freight accounting from the revenue standpoint. Then he became a way-bill clerk; then the chief out-bound clerk with charge of the way-bill desk in addition; then he became chief clerk of a general agent of a traffic department; then he left railroad service and took service with Haskins & Sells, certified public accountants. He served as an accountant for about six years and then entered his present employment of Supervisor of Efficiency of the Frisco road.

During his service with Haskins & Sells he was engaged in the preparation of data under direction of members of that firm for use in the Missouri Rate Case, and then in the Arkansas Rate Case. In the Arkansas case he had charge of the detailed preparation, gathering data, and preparation of exhibits under the direction of Mr. Wharton, one of the members of said firm. (R. pp. 66-68.)

Mr. Frank Nay is the Comptroller of the Chicago, Rock Island & Pacific Railway Company. He began his railroad service in 1883 as a statistical clerk. He served two different roads in that capacity for a period of four years; then he was a traveling auditor; then he was the chief clerk to a General Auditor; then he was the Auditor of the Minneapolis & St. Louis Railroad, and also Auditor of the Iowa Central Railroad; then he became Assistant Comptroller; then General Auditor, and then Comptroller of the Rock Island System. (R. p. 291.)

Thus it is seen that his entire railroad experience has been in the auditing departments of railroads.

The witnesses introduced by the State were Mr. Mayer and Mr. Simson.

Mr. Mayer occupied the position of Auditor of the Corporation Commission of Oklahoma, and had fourteen years' railroad experience before beginning service with the Corporation Commission of Oklahoma, and had been with the Corporation Commission three years as Auditor in charge of the Division of Statistics and Accounts. (R. p. 543.)

His railroad experience was as follows: He began work as a section hand; then as a time-keeper on the section. This work he did in his summer vacations. Then he became a brakeman; then a machine helper; then clerical work in Chief Dispatcher's office; then became an assistant trainmaster; then was in charge of the Maintenance of Way Department. The engineer of Maintenance of Way of the road had been displaced and he was given the duties performed by the engineer in charge of Maintenance of Way, Bridge and Building work. There were six Road Masters under him. This was on the Chicago & Alton Railroad.

His next work was in the office of the President of the M., K. & T. Railroad. His duty was to analyze all statistical statements that were made which dealt with all phases of railroad operation, and write such letters to be approved and signed by the President concerning the part of the railroad operation and maintenance as he thought needed correction. Then he acted as Auditor of Disbursements on the same road, and was carried on the pay-roll as Chief Clerk of Disbursements. He went from that work to the Corporation Commission of Oklahoma. (R. p. 575.)

His statement of his position in charge of Maintenance of Way of the Chicago & Alton seemed to be doubted from the questions put to him, and he introduced a letter from the General Manager of the road in which it is stated he had had full charge of the Maintenance of Way, Bridge and Building department during the past two years on the Chicago & Alton Railroad and is able to fill a better position than the one he now occupies. (R. P. 588.)

Mr. Simson is an accountant and the resident partner of the firm of Haskins & Sells, in charge of the St. Louis office of that firm. He had rather extensive experience in several roads in the accounting department, occupying various positions in the accounting department of different roads. He left railroad service in 1901 and entered the employment of Haskins & Sells, as assistant accountant and has continued as a public accountant from that time to the present, except four years when he did accounting work in insurance investigations and later worked for the Equitable Life Assurance Society. His accounting work has taken him gen-

erally over the country in examination of railroad accounts, commercial institutions, in fact, nearly all lines of business.

*History of the Formula.*

Mr. Hamilton testifies that in July, 1913, he was requested by the General Solicitor of his law department to represent the law department of his Company in a conference that had been called to consider the decisions handed down by the Supreme Court of the United States known as the State Rate Cases.

His road had this injunction suit pending in Arkansas, and a similar one in Oklahoma.

All of the bases formerly employed by the railroads in division of expenses between state and interstate traffic in former rate cases had been condemned by the Supreme Court as they understood it. It, therefore, became necessary "in compliance with the expressed wish of that Court," to revise their methods and make another effort to get at the facts.

They interpreted the decisions to mean that expenses which are common to various classes of traffic should be divided on the use unit basis; that the use made of the property by each class should determine the apportionment of expenses, and subsequently the value of the property on which the carrier expected to earn a return on each class.

They did not understand that the court told them how to do it, but told them what they wanted and they undertook to do it. By each class he meant freight and passenger, interstate and intrastate, mail, express, and miscellaneous. The use is reflected by the various physical factors: train mile, ton mile, engine mile, car mile, tons and passengers.

The first conference of this Committee was had early in July, 1913, a few days after they got the decision of the Supreme Court in the Minnesota Rate Case. Conferences were held extending into the middle of October, 1913. As the result of these conferences which were held practically every week, the Formula, which, in the opinion of the conference Committee, complied with the expressed wish of the Supreme Court, was devised.

The Formula which was filed as Exhibit No. 1 has a list of the personnel of the Committee. The Exhibit shows the names of all who participated at this conference either directly as the Committee, or in an advisory way. (R. pp. 68-70.)

The Formula which is Exhibit 1, beginning at page 1797, shows the Committee who prepared it to be composed of James Peabody, Statistician, A., T. & S. F. Rd. Co.; F. Nay,

Comptroller of Rock Island Lines; R. J. McCarty, Vice-President Kansas City Southern Railway; E. W. Peabody, Statistician, M., K. & T. Railway; T. A. Hamilton, Supervisor of Efficiency, St. Louis & San Francisco Railroad. The names of general attorneys and solicitors, engineers, auditors, and statisticians of other railroads who rendered valuable aid in counsel and co-operation with the Committee are printed on page 2.

Mr. Hamilton stated that the theory of the Committee was that the factors shown in this Exhibit reach, in so far as their judgment could determine it, in each instance, the use of the property and the use of the property which caused the incurring of each item of expense; that was the keynote of the preparation of the Formula. (R. p. 72.)

Mr. Nay gives substantially the same account. (R. pp. 292-293.)

The Formula, Exhibit 1, beginning on page 1797, consists of 39 pages of original matter without the interleaved pages.

*The Formula.*

The Frisco made many modifications of the Formula as prepared by the Committee. Mr. Hamilton explains that by stating there were some local conditions on the Frisco, minor in their nature, which made it necessary to slightly vary the application of the bases laid down in the Formula, but without variance in the principles which the Formula laid down. (R. p. 75.)

These modifications were inserted as typewritten matter interleaved. They are frequently referred to as the typewritten modifications. Exhibit 1 instead of having these modifications typewritten has them in their original form of interleaves, but on more substantial paper and printed on different colored paper. When you see references to the typewritten interleaved modifications of the Formula they are found exactly the same in Exhibit 1 only in more durable shape and printed on the saffron colored paper.

The primary division in the Formula is between line and terminal, and page 2 contains a diagram giving the distinction between them.

Line expenses are defined to be those which attach to or are directly connected with, or occasioned by, the transportation of traffic from place of receipt, one terminal, to the point of delivery, another terminal. Any service performed in the movement between these termini is line expense, and any service incident thereto constitutes a line expense.

Terminal expenses are those which attach to or are connected with, or occasioned by, the securing, receiving, loading, or otherwise preparing traffic for movement, and the

unloading, delivering, and other outlay incident to the disposition of the traffic at delivering station. Any service incident thereto, and any expense incurred in connection therewith, constitutes a terminal expense.

These primary divisions of all expenses between the line and terminal are further defined and illustrated at pages 3-5 of the Formula.

This plan contemplates that every item of expense of a railroad is either line or terminal and provides for an allocation thereof to one or the other class. After thus defining its scope then the Formula takes up bases for the apportionment of revenue and expenses, and property.

The first step is the apportionment of revenue to the States.

The intrastate revenue in the main apportions itself automatically. A system of apportioning interstate revenue on a mileage prorate including an equivalent mileage for terminal cost is worked out. This will be hereafter referred to in argument. Then the revenue from various other sources other than transportation are assigned to the States on some bases of apportionment adopted therefor.

The next step is the apportionment of expenses to States by primary accounts. This is largely automatic as to Maintenance of Way and Structures except where divisions cross the State line and there are common expenses and some basis must be obtained for an apportionment, and various bases are used therein.

On Maintenance of Equipment, expenses of locomotive repairs, renewals and depreciations, are worked out on an elaborate system. Running repair costs were assigned on the basis of general repair costs where an engine performed service in one or more States or classes of service, on basis of an average mileage repair cost. This was a modification of the Formula. Formula, page 9a.

Passenger train car repairs were assigned to the State on a basis of car mileage in each State (Pullman mileage excepted); freight car repairs and work car equipment on the same basis. (Formula Page 9.)

Traffic Expenses, after making a division between freight and passenger, were apportioned to States on a basis of net ton miles and revenue passenger miles. Transportation Expenses were apportioned on many bases where they could not be definitely located. Most of them were directly located.

General Expenses were apportioned on a basis of assignment of all operating expenses in Accounts 1 to 105; that is, they were treated as overhead expense.

The next step was the apportionment of expenses between

line and terminal. Tracks are defined and the expenses of the defined tracks correctly located. Telegraph and telephone lines are assumed to be common, and apportioned half and half between line and terminal. Buildings, fixtures and grounds were apportioned on many bases.

Maintenance of Equipment is the next step. Steam locomotive repairs, renewals and depreciations are divided between freight and passenger and then the freight locomotive repairs apportioned between line and terminal in the ratio that time in line service and time in terminal service bear to the total time on the road.

Passenger locomotive repairs are divided between line and terminal in the same proportion as is determined for passenger cars. Switch locomotives to be determined between line and terminal on basis of time employed in switching line and terminal cars respectively. The amount assigned to "work" to be ascertained on mileage basis and apportioned on the basis of account 43, which is an apportionment on basis of accounts 2-17 inclusive. The division of passenger car repairs apportionable to line or terminal, it is stated, is wholly a matter of opinion which must be determined by experts.

The Chairman of the General Managers Association submitted by letter ballot an inquiry to the general managers accompanied by a full explanation of exactly what in the Formula constituted line and terminal service. An average was taken of these letter ballots; 64.94 per cent assigned to line and 35.06 per cent assigned to terminal. (Formula page 13.)

The same course was pursued with freight car repairs, resulting in an assignment of 36.03 per cent to line, and 63.97 per cent to terminal. (Formula page 14.)

Mr. Symons was called as a witness on this subject by the railroad, and testified as an expert, as to the expense to be assigned to line and terminal respectively, in regard to locomotive, passenger car, and freight car repairs, renewals, and depreciation.

After his testimony was given the railroad filed Exhibit 51, Record page 2186, giving the effect of applying locomotive and car repair percentages offered in evidence by Symons to the Exhibits previously filed based on General Managers' average opinions.

Mr. Hamilton explains the effect in dollars and cents between the Symons percentages and the General Manager's percentages as worked out in the exhibits, which is negligable, Record page 537.

The next step is the apportionment of Transportation Expenses between line and terminal. The big item of this is the wages of the yard men and of the trainmen. This is worked out on a time study proposition. The General expenses are apportioned on an overhead basis.

Next comes the apportionment of line expenses between freight and passenger by primary accounts. The biggest item in the Maintenance of Way are accounts 2 to 10, which include the roadway proper between stations, and this is divided on the engine ton mile basis, of which more anon.

The next largest item is Buildings, Fixtures and Grounds, which is worked out on many different bases, principally time studies. It would be too tedious to take up the various bases used for this apportionment.

The next step is the apportionment of terminal expenses between freight and passenger by primary accounts. These are worked out under the various bases referred to heretofore and some which will be referred to in the course of the argument.

Next is taken up the apportionment of line and passenger expense between interstate and intrastate by primary accounts. Then the apportionment of line freight between intrastate and interstate is worked out, and similarly the apportionment of terminal passenger between intrastate and interstate by primary accounts, and an apportionment of terminal freight between intrastate and interstate by primary accounts.

After these various apportionments are made on the numerous bases then there was an adjustment of company or non-revenue service between freight and passenger. An explanation of it is found on page 37 of the Formula.

Then the Formula proceeds to an apportionment of property values in the State between classes of traffic. It provided that the values are to be located by the engineering department to individual stations, other individual terminal facilities and tracks and to certain convenient sections of line.

The value of individual facilities and tracks to be apportioned between freight and pasenger and between line and terminal in the ratio of the percentages determined for an apportionment of the maintenance of such facilities. Other values common to freight and passenger or to line and terminal, or common to all, are apportioned in accordance with the apportionment of maintenance changes of the same facilities except that line values common to freight and passenger are to be apportioned on the basis of revenue train miles

including mixed train miles which are to be split one-half to freight and one-half to passenger.

The apportionment of value of roadway and structures between state and interstate, and mail and express to be in the ratio of the assigned Maintenance of Way and Structure expense, after company material adjustment had been made, treating freight and passenger separately. (Formula page 38.)

The Frisco made material modification of this plan. (Formuula page 39a.)

Under it the original cost of roadway and structures was apportioned first to the various classes of service, and subsequently to the various classes of traffic, on the basis of assignment of Transportation expenses to each class of service and traffic. In other words, instead of taking all of the expenses for this assignment, Transportation expenses alone were taken as the basis for the apportionment of the property.

The locomotive values were apportioned on an engine value mileage basis.

*Evidence to Sustain the Formula.*

Except as to two propositions (the division of expenses of repairs of locomotives, freight, and passenger cars between line and terminal which was sustained by Mr. Symons and the value of the engine ton mile as unit for the division of common expenses of the line proportion of the roadway between freight and passenger, which was supposed to be supported by Mr. Frates), the testimony to support the Formula is only that of Mr. Hamilton and Mr. Nay.

Heretofore is set out their experience and qualifications. As will be seen from following their testimony, which goes into much detail, and into every basis adopted, many problems are presented for the solution of which they have had no practical experience and only theoretical information gathered from Rate Cases and auditing railroad accounts. They take up and support each item in the Formula and exhibits worked out thereunder except such matters where they grudgingly admit mistakes or omissions which they say are negligible.

*The Testimony in Opposition to the Formula.*

The testimony offered in opposition to the Formula was of two classes: Exhibits prepared by the State's witnesses, the mathematical accuracy of none of which is disputed (after some errors had occurred, substituted exhibits were filed in lieu of the erroneous ones) and the opinion evidence of Mr. Simson and Mr. Mayer.

The experience and qualification of Mr. Simson and Mr. Mayer have heretofore been set out. Mr. Simson has had a long accounting experience just as Mr. Nay has had a long accounting experience. Mr. Mayer has had considerable practical railroad experience, as much or more than Mr. Hamilton. He has had three years of theoretical accounting work with the Corporation Commission just as Mr. Hamilton has had several years of theoretical accounting work with Haskins & Sells and in his present position in handling data and statistics in Rate Cases.

Mr. Mayer criticizes the Formula in many of its most material features and gives his reasons for objecting thereto. He also files an Exhibit, "CC," which demonstrates the fallacy of engine ton mile as a basis of dividing the common line expenses between freight and passenger. He objects specifically to the arbitrary division of all expenses between line and terminal. (R. pp. 571-574.)

He objects to using the Transportation expenses as a basis for apportionment of the value of the property between state and interstate. (R. pp. 566-567.)

He objects to classifying the breaking up and making up of trains as a line expense; and shows that by thus doing the intrastate freight traffic is being charged with expenses which it does not incur; that the average haul of intrastate freight is 25 miles and division points are usually about one hundred miles apart, and therefore, this expense, which is incurred there, is ratably put upon the intrastate traffic, when in fact the intrastate traffic except in a few instances would not pass through the division point and incur this heavy expense. (R. p. 562.)

Mr. Simson testified that from his experience as a railroad auditor and as an accountant that the divisions between line and terminal and subsequently between state and interstate as worked out in this Formula are such that if they were submitted to him by a client asking his advice as to whether he could accept the figures thus worked he would say that he could not accept them. He gives his reasons therefor. (R. p. 630.)

The exhibits filed by the State dealing with the Formula will be taken up in the course of the argument.

The testimony of Mr. Symons and Mr. Frates will be dealt with under the subjects which they discuss.

*The Application of the Formula to this Case.*

If the Formula was applied to existing conditions and the data called for by it was gathered concurrently with the operations performed and expenses incurred it would be subject to the criticisms which have been made of it, but when, as in this case, it is

not so applied but is used by a system of equation to ascertain the condition of affairs of the road prior to the granting of the preliminary injunction, a period of six years before the tests were made which are its foundation, an additional question of its value is brought into the case. Mr. Hamilton explains how it was applied as follows:

It was necessary first to ascertain what character of freight and in what quantities each local freight train and mixed train and through train carried within the State of Arkansas. That could not be done thoroughly by going back to the Company's regular records. It had necessarily to be done as a matter of special investigation. They placed clerks upon all the local freight and mixed trains running in Arkansas during the months of November and December, 1913. They placed a special yard clerk at the termini of all through freight runs whose duty was to see that all of the contents of the train as it left the termini were recorded. They imposed upon conductors in charge of through freight trains the duty of recording the facts as to the character and quantity of freight, distance hauled, and all necessary data covering all the freight which they picked up and set out of the train between termini, and a yard clerk at the arriving terminal was required to fill out a report handed him by the conductor, which in the first instance he had received from the clerk at the departing terminal, containing all the data which the conductor had not filled out or which the yard clerk at the originating terminal had not filled in. The test was made thoroughly, going into every minutiae of the movement. This was for two months. (R. pp. 75-76.)

In carrying out this work certain forms of circulars and instructions were necessary. Copies of them are offered as Exhibits 2a-2k. (R. p. 79.)

In the months of November and December, 1913, similar investigations and analyses were made of passenger trains. (R. p. 84.)

Through various exhibits the data collected and the methods applied under the Formula are worked out for the two test months of 1913 in Exhibit 17, page 2022, showing the total operating expenses of intrastate and interstate freight and passenger, and mail and express traffic; also excess cost of intrastate traffic—freight and passenger—over the interstate traffic. According to this exhibit there was an excess cost of intrastate over interstate passenger traffic of 15.43 per cent and of intrastate freight over interstate freight of 319.58 per cent.

"This Exhibit brings to a focus the results of the two months tests that were made, our effort being through this

detailed analysis and application of this formula to work out for this test period which we consider representative, at least the excess cost of intrastate passenger and freight business over interstate, and substitute that detailed, that careful, close to the ground analysis, for the expert opinion that has gone heretofore as to those extra costs." (R. p. 91.)

Having obtained from Exhibit 17 the alleged extra cost then they took those percentages back into the prior years of 1913, 1912, 1911, 1910, and the four months ended December 31st, 1907, as reflecting proportionally the excess cost of intrastate traffic over interstate in each of these periods; so when the division of freight expense and passenger expense in these prior years and period were set up in subsequent exhibits they added to the ton miles and passenger miles intrastate these percentages of extra cost determined in the two months of 1913; "that was the connecting link between the test period and prior years." (R. p. 93.)

Exhibit 23 is an explanation of the method employed in ascertaining figures for earnings and expenses assigned to Arkansas and to freight, passenger, intrastate and interstate, mail and express for the years 1912, 1911, 1910, and the four months of 1907.

It was the application of the earnings and expenses, etc., in the year 1913 as shown in Exhibit 22 (R. p. 2048) for the prior years and the period of inquiry. It took ten months and $35,000.00 to get the company's figures contained in the first 22 exhibits submitted. (R. p. 103.)

This Exhibit 23 states that the railroad in preparing reports required by the Railroad Commissions of the States, during previous years used a Formula for the allocation of revenues and expenses to the State which it had uniformly applied throughout those years.

It also had in use uniformly, throughout all of the years mentioned, a formula for the division of expenses between freight and passenger service for purposes of its own operating comparisons. In order to accomplish a reassignment of earnings and expenses to Arkansas for these prior years on the basis of the new Formula in the time at the disposal of the railroad and avoid the enormous expense incident to reworking all of the voluminous detail it was felt that a proper showing of Arkansas earnings and expenses divided between freight and passenger service in these prior years might be made by determining the relation of the results obtained in the year 1913 from an actual application of the earnings and expense of the road on the New Formula filed as Exhibit 1, and the formula formerly used in making the reports to the Railroad Commission and the formula for dividing ex-

penses between freight and passenger for purpose of operating comparisons, by equating the earnings and expenses reported to the Railroad Commission and as divided between freight and passenger on basis of percentage relation of the results of applying the new Formula, Exhibit 1, and the results of applying the Railroad Company's old Formula to the earnings and expenses of 1913 in minute detail; that is to say, a percentage relation in 1913 was established between the old and new Formulas. This equation was applied only to such items as could not be actually allocated to Arkansas and between freight and passenger or could only be so allocated by a detailed analysis or prorate. Such items as permitted of a direct allocation without analysis or prorate were directly allocated in each of the years, namely, intrastate freight and passenger revenue, mail and express earnings and special train service revenue. In order to reach to the four months ended December 31st, 1907, this method was adopted: The report to the Railroad Commission including these months was the report for the fiscal year ended June 30th, 1908. That year the railroad had not made any assignment of earnings and expenses to Arkansas, but had reported to the Railroad Commission the earnings and expenses of the entire railroad. The expenses assigned to Arkansas between freight and passenger for the four months were assigned on the basis of the railroad's old Formula and then the same equation of earnings and expenses for the four months period was made with the new Formula as was made for the years 1912, 1911, 1910. (P. 2 Exhibit 23.)

Mr. Hamilton explains this method also in his testimony, page 103-104.

The percentages obtained in the two months test period of 1913 were for the purpose of showing the extra cost of intrastate over interstate business and were carried back into the period of inquiry in 1907. The freight and passenger division was also made on the percentages derived from the two months test and the engine ton mile was the unit. (R. p. 854), but the assignment of expenses and revenue to the State was made on the analysis of the year 1913 and equated back to the other years and period. (R. pp. 141-142.)

Mr. Hamilton states that as an academic proposition that Mr. Douglass' bases were wrong. They are not all use units by any means. What they have done is to determine the relation of what Mr. Douglass' Formula brought in 1913 to what they got by completely reworking 1913 on the basis of the new Formula, Exhibit No. 1; and when they established that relationship, to equate Mr. Douglass' assignment in the prior years and four months period of 1907 to the new Formula on the basis of that 1913 relationship between the two

formulas. In his opinion it did not make very much difference whether Mr. Douglass divided those expenses in all these back periods by engine miles or potatoes, so long as he used the potatoes consistently and used them in 1913, where they made their comparisons of his results with the new Formula. "As a mathematical proposition our equation is correct." (R. p. 276.)

Mr. Nay gave his opinion that the equating of the one formula with another was a proper process. (R. pp. 344-346.)

Aside from the exhibits on each side which will be referred to in the argument, this was all the testimony to sustain the equating process.

On the other hand the State's witnesses, Mr. Mayer and Mr. Simson, disapproved it for reasons given by them. (R. pp. 700 and 630.)

It is an admitted fact that the value of the equation, if it has any at all, is based upon the proof that the test period of 1913 was in all respects similar to that period to which the equation was carried. The Railroad Company attempted to meet this proof by introducing various exhibits called "normality exhibits." These will be referred to in the argument.

## ASSIGNMENT OF ERRORS.

"Now comes J. Sam Rowland, William F. McKnight and Thomas E. Wood, constituting the Railroad Commission of the State of Arkansas, defendants in the above entitled cause, and aver that in the record and proceedings herein there has been manifest errors committed to this, to-wit:

1. The Court erred in granting a perpetual injunction against the Railroad Commission, and all other per-
2351 sons, from enforcing Standard Freight Distance Tariff No. 3 and amendments thereto adopted prior to the institution of this action prescribing rates for the transportation of classes and commodities, and from enforcing an Act of the General Assembly of the State of Arkansas, approved February 9th, 1907, entitled, "An Act to Amend Section 6611 of Kirby's Digest of the Statutes of Arkansas by Fixing Passenger Rates in this State and for Other Purposes."

2. The Court erred in not dismissing the plaintiff's bill because plaintiff failed to establish by clear and decisive evidence that the intrastate freight and passenger rates sought to be injoined were confiscatory.

3. The Court erred in not dismissing the plaintiff's bill of complaint because the plaintiff failed to overcome the presumption that the freight rates established by the Railroad Commission and the passenger rates established by the General Assembly were reasonable and compensatory.

4. The Court erred in not dismissing the bill of plaintiff because the preponderance of the testimony established the fact that the freight and passenger rates sought to be enjoined were compensatory and earning the plaintiff a fair return on its property.

5. The Court erred in finding that the Formula, Exhibit No. 1, introduced by the plaintiff, fairly separated the expenses between intrastate and interstate traffic.

6. The Court erred in finding that the Formula, Exhibit No. 1, fairly apportioned the property between intrastate and interstate business.

7. The Court erred in adopting the plaintiff's basis for apportioning the expenses between intrastate and interstate traffic.

8. The Court erred in adopting the plaintiff's basis
2352 for apportioning the revenue between intrastate and interstate traffic.

9. The Court erred in the apportionment of the property to intrastate traffic.

10. The Court erred in retaining jurisdiction of this cause for any other purpose than to permit these defendants to show a changed condition which might relieve them of the injunction.

11. The court erred in decreeing that these defendants pay any part of the costs.

12. The Court erred in decreeing that any provision of Standard Freight Distance Tariff No. 3 be enjoined.

13. The Court erred in not requiring the plaintiff or the defendant Railroad Company to give bond to refund the difference in the enjoined rates and those charged by it pending the hearing of the appeal herein.

Wherefore for the errors aforesaid, and each and every of them, and many more apparent on the face of the record, the defendants, J. Sam Rowland, William F. McKnight and Thomas E. Wood, Railroad Commissioners of Arkansas, pray the reversal of the decree aforesaid, and that the Court be directed to enter a decree dismissing plaintiff's bill of complaint and such other relief as equity and good conscience will show these defendants entitled to receive."

The assignment of errors will not be discussed in the order in which they are presented because such discussion would necessarily call for repetition.

Instead of following the assignments it is thought that the argument may be condensed by being grouped into subjects, each of which will fall under one or more of the assignments of error.

## ARGUMENT.

### THE COMPANY WAS EARNING A COMPENSATORY RETURN ON ITS BUSINESS IN ARKANSAS.

In the case of Simpson vs. Shepherd, 230 U. S., 352, in considering the case of the Minneapolis & St. Louis Railroad Company, this Court held that while the methods of estimating value and of apportionment were unsound, yet the margin of error which might be imputed to them was not sufficiently great to escape the result that the return was confiscatory. The Court computed the net return from the entire business in Minnesota, interstate and intrastate, and it fell below a compensatory return on the old rates, thereby proving that no reduction could be made without confiscatory results.

In the case of Knott vs. C. B. & Q. Railroad Company, 230 U. S., 474, this Court sustained injunctions against the Missouri rates in the cases of three small roads, and in each of those, the Court considered the net revenue from the entire Missouri business, interstate and intrastate, and found that it was apparent that upon neither the revenue nor ton mile or passenger mile theory of dividing expenses, could any adequate return on the investment be earned. It was held that the errors attributable either to value or apportionment could not be regarded sufficiently great to change the result.

In order to demonstrate that this case does not fall within the principles announced in any of these cases, your attention is called to Exhibit "Y" (Record page No. 2257). The Company's original Exhibit No. 27 contained errors, which were admitted and in lieu of it No. "27 A" was substituted therefor. The State's accountant took said Exhibit No. 27 A and used the Company's figures and methods therein with three exceptions which will be herein set out at length.

This Exhibit takes as the value of the property $15,692,-338.00 which is the amount stipulated to be the value of the property in the year 1907. (Record page No. 906.) As this statement was for the four months period upon which the case was based—that is the four months ended December 31st, 1907—one-third of this amount was used. Substituting the figures in Exhibit "V" for the freight revenue, and the figures in Exhibit "W" for the Maintenance of Equipment expenses, and the figures in Exhibit "X" for the Transportation expenses, and in all other respects using the figures and methods of Exhibit No. "27 A" of the Railroad Company, the result is found to be that the Railroad was earning 6.53 per cent upon its entire business in the State of Arkansas.

As heretofore stated and as will be more fully shown here-

after, this was an unfair period of inquiry selected by the Railroad Company upon which the statistics for preliminary injunction were based. The Railroad was below the normal earning capacity in that period. The great panic of 1907 began in that period, and as the testimony herein shows, the revenue of the road was seriously affected thereby. When this abnormal period is brought to an average or normal conditions, which is shown in Exhibits by the State which are to be hereinafter referred to, it will be seen that the earning of the Railroad was 7.51 per cent upon its property in the State upon its entire business; and upon some of the other averaging processes used by the State to demonstrate the abnormality of this four months period, the return was much higher than 7.51 per cent. Passing, however, that question for the moment, your attention is directed to the changes made in the Company's figures by Exhibits "V", "W" and "X."

Exhibit "V" beginning at Record page No. 2249, is a statement of freight revenue on a received basis, and revenue per ton per mile and tonnage ratios for the four months ending December 31st, 1907.

Mr. Simson testified that Exhibit "V" is an application of the differences described by Exhibits "R," "S" and "U" to the earnings as shown on forwarded basis and applied to Arkansas under the old formula. It is purely an application of the adjustments called for by these other Exhibits just named to the revenue assigned to Arkansas. Along with it, he puts in the percentage statistics which indicates the revenue per ton per mile in these four months is not quite a constant factor until the adjustments are applied. (Record Page No. 624.)

Exhibit "R," page No. 2239, is a statement of deductions from and additions to freight revenue for milling in transit and cotton suspense and gross freight revenue relating thereto as shown in the Company's commodity statistical records of revenue by States, together with corrections of the apportionment to the State of Arkansas of the deduction from and additions to freight revenue, for the four months ended December 31st, 1907.

This shows the adjustment in the revenue accounts in the assignments to Arkansas of certain internal adjustments, being the adjustment of the revenues due to milling in transit, and the adjustment of the revenue due to cotton compressed in transit and re-shipped.

The first column shows the freight revenue in total; the second column shows the amount assigned to Arkansas each month for the commodities named. Under the plan the Company followed, there is an adjustment of the earnings as be-

tween wheat and flour, to practically put the flour on the basis as if it had moved at the flour rate from the point where the wheat originated. The Company had assigned these deductions on a mileage pro rate assigning to Arkansas 12%.

These corrections assigned to Arkansas the percentage of the adjustment to the revenue received from the particular shipment; for instance, wheat, while only .61% of 1% of the wheat revenue is assigned to Arkansas, yet under the 12% basis, $1553.19 is charged against Arkansas, when if the percentage of the wheat revenue assigned to Arkansas should be charged, it would only be .61% of 1%, or $78.95. (Record pages 620-621.)

Mr. Hamilton, accountant for the Railroad, was called by the Railroad in rebuttal, examined by the counsel for the Railroad (R. p. 836), in regard to this Exhibit. He stated it reflected from their Records, for each month, the total gross revenue derived by the Company on wheat, corn, flour and other mill products and cotton. It showed also the amount of such earnings which were apportioned to the State by the Auditor.

In the third column it showed what proportion of the total entire line earnings on these commodities was assigned to Arkansas, expressed in percentages. Then it showed the deductions from freight revenue and the additions to freight revenue on account of adjusting milling in transit and cotton suspense matters for the entire Railroad. Then he states: "I have not any quarrel with the principle of the Exhibits, so far as that goes." He followed the Exhibit out and stated that it shows as a result of applying that method as contrasted with the mileage pro rate that there should be added back to Arkansas earnings in these four months, $7276.04. Then he stated he was curious to see how much of that covered intrastate business, and proceeded to point out that most, if not all of it, affected the interstate and not the intrastate revenue. Therefore, this correction is approved by the Railroad Company. It is unquestionably a sound correction as the Railroad Company assigned the deductions of revenue on a mileage pro rate irrespective of the revenue assigned to the State from these commodities. This merely made the deductions in proportion to the revenue received in the State.

Exhibit "S," Record Page 2241, is a statement of the amount of "charges and prepay—connecting lines" and apportionment to Arkansas on a road mileage basis of 12%, with corrections thereof to basis of the apportionment of the gross freight revenue, for the four months ended December 31st, 1907. This is on the plan of Exhibit "R." The Com-

pany had assigned a flat 12% on a mileage basis to Arkansas.

If the amount was apportioned month by month to agree with the actual revenue distributed to Arkansas against the total revenue, the changes in favor of the amount assigned to Arkansas would aggregate $5,918.90. (Record Page 621-622.)

Mr. Hamilton explains in his rebuttal testimony the nature of this exhibit, and states: "Now, the State accountants have reprorated that amount to Arkansas on the basis of the other earnings which were directly assigned. If I were going to make that kind of assignment, I would do it on that basis." Then he points out that this does not touch any of the intrastate revenue. (Record page No. 838.)

Exhibit "U," Record Page 2247, is a statement of the amount of freight in transit, and the net decrease thereof, shown as deductions in the Company's commodity statistical records of freight revenue, together with an apportionment to the State on a basis of the apportionment of the gross freight revenue, added back to freight revenue in order to resolve the revenue to received basis for the four months ended December 31st, 1907.

Mr. Simson explains that this Exhibit is nothing more than a writing back of the transit and a reduction of the basis of earnings from a forwarded to a received basis. On the forwarded basis, all of the earnings on freight waybilled within the period are taken into the earnings whether the service is completed or not. On the received basis, only the earnings on the waybills on which the service has been completed and the waybill reported by the agent as received, are the earnings taken into the accounts. If the accounts remain on the forwarded basis there will be a big charge against the earnings of the test period which is not a fair test. Statistics in other Exhibits show in this instance it was the biggest charge in a nine year period, and none other like it in the whole period. But putting the account on a received basis, there will be carried into the four months period, all of the freight that was received by the Railroad from the first to the last day of that four months and that which was in transit at the beginning of the four months and in transit at the end of the four months. (Record page 623-624.)

Mr. Simson put into the record a letter which he had received from the Chief Examiner of Accounts of the Interstate Commerce Commission as to certain roads being on a forwarded or received basis. The Chief Examiner states that an examination of the information filed in his office indicates a gradual change to the received basis, and also indicates that the roads mentioned in his letter are accounting for freight

on the received or forwarded basis as therein stated, which shows: Only two are on the forwarded basis, twenty-two on the received basis and six on partially one and partially the other. (Record page 718-720.)

Referring to this Exhibit "U," Mr. Hamilton stated that it referred to the suspense transit freight and shows that if it were all put back and set up four months on a level basis, in allowing for the contraction of business in September, and making a proper assignment of the amounts on the revenue (received) basis, that Arkansas's gross earnings in these four months, would be increased $27,316.22. (Record page No. 839.)

At page No. 851, Mr. Hamilton again refers to this Exhibit and says he does not challenge the accuracy of the figures, but does not agree to the basis upon which it is made—that is placing the accounts on a received basis. It assumes that the in transit freight at the end of December would exactly balance the in transit freight at the beginning of September. (No. 851.)

Mr. Hamilton had therefore stated that these lapovers, as they are called, would equalize each other. He stated, "I think in a four months period the lapover earnings would be inconsequential, especially on intrastate business, where the haul is as short as on our road in the State of Arkansas.

Q. "Then the freight in transit from one month to another, or one period to another, should equalize itself in a period of time?"

A. "That is my judgment. It might not in one month, but I think it would in four months or six months." (Record Page No. 143.)

It is apparent that Exhibit "V" and its three supporting Exhibits, "R," "S" and "U," are established, not only by their intrinsic accuracy, but by the admission of the accountant for the Railroad Company.

Exhibit "W," Record Page No. 2251, is a detail of adjustments to Maintenance of Equipment Expenses for the four months ended December 31st, 1907, as applied to the expenses assigned by the Company to the State in its Exhibit "27 A," under the "old formula."

Exhibit "X," Record page No. 2254, is a detail of adjustment of certain transportation expenses for the four months ended December 31st, 1907. Mr. Simson explains these Exhibits fully, Pages 711-716. It appears that Mr. Douglas, Auditor of the Railroad, had a formula which he had used for many years in making reports to the Railroad Commissions. This is called the old formula, or the Douglas formula. He departed from that formula in many instances in the four months period. He followed the formula in Sep-

tember, and departed from it in the three months following in the instances referred to in these Exhibits. In the main, this is but a reworking of the figures to conform to the September figures, which were the figures which followed the formula. There are some small differences as to interpretation of the formula. Mr. Hamilton, page 850-851, discusses these differences and Mr. Simson explains them fully on the pages stated.

Mr. Hamilton stated that the Douglas method was very close to the method the Company used in this new formula. (Page 870-871). These matters are small and the corrections are made more for the sake of accuracy than for any substantial effect on the revenue. Mr. Simson in following the Douglas formula which he approved, as a better formula than the new one, had not only the authority of Mr. Douglas, but uniform practice of the Railroad for many years in reporting these expenses to the Railroad Commissions in the various states in which it is operated.

While Mr. Hamilton does not exactly agree to all of these details, yet none of his contentions dispute either the accuracy of the figures or the propriety of the method used in the Douglas formula in these particulars where Mr. Simson has made the figures correspond thereto. A reading of Mr. Simson's testimony at the pages given remove any question but that these corrections were properly made.

Therefore, it is confidently asserted that if the Court will follow the detail of these adjustments and corrections that are made in the three Exhibits "V," "W" and "X," you will be satisfied beyond any doubt whatsoever that these are proper corrections to be made, and the placing them in Exhibit "27 A" and using the Company's figures and methods in all other respects, makes a return on the property at the rate of 6.53 per cent upon all the business in Arkansas for the four months period. This is not a normal period to test any rate case through. Mr. Hamilton stated in the last four months of the year 1907 the Frisco had the largest earnings for some years. The panic struck the country in October, 1907, and Mr. Nay testified that the slump began in November. Mr. Hamilton put in the earnings of the Frisco for the four months:

| | |
|---|---|
| September | $2,241,000.00 |
| October | 2,461,000.00 |
| November | 2,252,000.00 |
| December | 1,979,000.00 |

(Record page 201.)

These figures show high water mark in October, decided falling off in November, and still more decided falling off in

December. Mr. Nay testified the panic began to be felt on his road in November, 1907. Subsequently these same figures were put before Mr. Nay, who stated that these figures confirm his previous testimony that the slump began the latter part of November and was felt severely then and in December. (Page No. 382.) The greater expense of that period will be developed later.

## THE FOUR MONTHS PERIOD OF 1907 WAS BELOW NORMAL.

It has just been demonstrated through Exhibit "Y", which is nothing but an adaptation of the Company's figures in Exhibit "27 A" to the value of the property as stipulated with the corrections made of manifest errors as shown in Exhibits "V," "W" and "X" that the Company was earning in Arkansas during the period of inquiry 6.53 per cent upon all of its business, but the State's contention goes to the further point that this was not a normal return, and average conditions show that the Company was earning 7.50 per cent to 8 per cent on its property in Arkansas on all of its business in said State.

The State objected to taking the statistics of the 1913 two months test and transposing them back to determine the condition of the road in 1907 upon which the preliminary injunction was granted. To meet this point, Mr. Hamilton stated that he had in progress of preparation figures as to traffic and operating conditions which would show that these two months could be taken as representative of any year and that they would apply to 1907 as well as to 1913. (Record page 91.) And he further stated that the assumption of extra cost alleged to have been developed in the two months test of 1913 of intrastate traffic was reflective of the cost relationship of the two classes of traffic in 1907. That it would be shown there would be a normal relationship between 1907 and the test period of two months. (Record page page 93.)

The Court admitted the introduction of the testimony with the understanding that such evidence connecting the periods would be introduced. Before it was introduced, Mr. Nay was called upon by the Railroad to define what would be a normal relationship of one period to another, and what data should be gathered to prove the normality. He gave these as the controlling factors:

First: The road mileage. It would be necessary to consider whether there had been a change in the mileage of the road between one period and the other.

Second: The load per train. That is, the number of tons per train or number of passengers per train.

Third: The average length of haul of freight or passenger.

Fourth: The relationship of empty car movement in case of freight to the loaded car movement.

Fifth: The relationship of interstate and intrastate traffic, if they were substantially the same. That is, if substantially the same percentage of the total traffic was intra and inter, it would indicate same conditions.

Sixth: The assigned expenses in proportion to the traffic. That is, in this case the proportion of Arkansas expenses to the total of the road and the proportion of the traffic to the proportion of the road. If in one period the expense would be, say 15 per cent of the total and the traffic should be, say 18 per cent, and in another period the expenses would be 13, 14, 16 and 17 per cent and the traffic be within a few per cent, it would indicate somewhat similar conditions.

These six items indicate a similarity or difference in condition according to whether the relationship of the various items was similar or different. No one of them could be considered to govern, but they should all be taken into consideration. (Record page 441-442.)

Thereafter Mr. Hamilton introduced a series of Exhibits known as the Normality Exhibits. (Record page 448-457.) These Exhibits are numbered 34 to 41, inclusive, and your attention is invited to them.

Exhibit 34 is the average miles per freight car per day for the entire line for six years and for the last four months of six years. It shows a variation in the years from 22.75 to 25.45 and in the four month period, from 21.56 to 26.46.

Exhibit 35 shows the ratio of the entire line earnings for the last four months of the calendar year compared with the total earnings for each of those fiscal years. There is a variation from 35.75 per cent to 36.98 per cent, the largest percentage of earnings of any of the four months of the fiscal years being September, October, November and December of 1907 to the fiscal year ended June 30th, 1908, that being 36.98 per cent.

Exhibit 36 is the ratio of the Arkansas earnings to the entire line earnings for the four months ended December 31st, 1907, and for the years 1910, 1911, 1912 and 1913. The variation is from 9.94 per cent for said four months to 10.47 per cent for the year 1912. This is followed by a comparison assuming the 3c passenger fare and the Court traffic freight rates had been charged throughout all the periods.

Such assumption raises the percentage of the four months period from 9.94 to 10.43 per cent.

Exhibit 37 gives the road mileage operated at the various periods. It shows an increase in mileage of the entire line of 19.58 from December, 1907, to December, 1913, and an increase in Arkansas mileage for the same period of 5.49 miles.

Exhibit 38 shows train miles, net ton revenue freight one mile, revenue passengers one mile, per mile of road per day in the State of Arkansas for the four months ended December 31st, 1907, and the fiscal years of 1910, 1911, 1912 and 1913, and in the months of November and December, 1913. In freight train miles, it shows 6.4 in four months of 1907, and 4.3 for November and December, 1913. Passenger train miles shows in the four months of 1907, 4.6 and the two months of November and December, 1913, 4.4. Of net tons of revenue freight one mile, it shows for the four months of 1907, 1,417. For the months of November and December, 1913, 1,280, and more or less variation in each year intervening; of revenue passengers one mile it shows for the four months of 1907, 197 and for the months of November and December, 1913, 271, the former being the lowest and the latter the highest of the periods.

Exhibit 39 shows the average haul of the freight and passengers in Arkansas, State and interstate, for the four months period of 1907, the fiscal years of 1910, 1911, 1912 and 1913 and the six months ended December 31st, 1913; the intrastate haul varying in those periods from 21.26 to 27.97, and the interstate haul varying from 76.20 to 85.58. On the passenger side the intrastate haul varying from 16.31 to 19.06, and the interstate haul varying from 39.89 to 47.67.

Exhibit 40 shows the ratio of intrastate and interstate traffic to the total in Arkansas—freight and passenger—for the four months period of 1907, the fiscal years of 1910, 1911, 1912 and 1913, the months of November and December, 1913. For the year 1913 intrastate percentage of ton miles was 2.81 per cent which was the lowest and the highest was the two months of 1913, 3.89 per cent. For the four months of 1907 it was 3.65, the interstate, of course, being the remaining difference between these figures and 100. On the passenger side the intrastate was lowest in 1912, 31.80, and the highest in four months of 1907, 43.77, and the next highest in the two months of 1913, 40.55.

Exhibit 41 gives the Arkansas proportion of the entire line operating expenses and the traffic compared for the four months of 1907 and the fiscal years 1910, 1911, 1912 and 1913, and the months of November and December, 1913. The percentage of the entire line operating expenses assigned to Ar-

kansas was highest in the four months of 1907, being 11.80 per cent, and the lowest in November and December, 1913, being 10.44 per cent. (A variation will be noted between the period of inquiry and the test period of 1.36 per cent.) The net tons one mile show highest for the four months of 1907, being 11.28 per cent, and the lowest for the test period of 1913, being 9.48 per cent, a difference of 1.80 per cent. On the passenger side of it, the highest was for the two months of November and December, 1913, being 11.14 per cent, the lowest being for the year 1913, 9.75 per cent; the four months period of 1907 being 10.25 per cent.

Mr. Simson, for the State, made up a series of Exhibits based on these normality Exhibits of the Railroad.

It developed in his cross-examination that he and his accountants had made a mistake in their computations of the costs. The mistake is summed up (Record 751) wherein Mr. Simson stated that after examining the records he found that Exhibits "H," "I," "J," "K," "L," "M," "N," "O," "P" and "Z" each contained errors, in that the earnings of the lines north of the Red River had been set up and the expenses with which these earnings were compared included from two to five of the short lines of other Frisco roads in Texas which were not parties to the litigation.

Mr. Simson explains, page 781, that the error was made in his office through a misconception of what he and his assistants in discussing among themselves, considered the entire line. They had made up statistics covering the entire Frisco line, including its various short lines in Texas, and also statistics covering the line north of the Red River which is the Frisco railroad in this suit.

Part of his force worked on one set of the figures and the other part on the other and it was not discovered that the revenue and the expenses did not match up as being upon the same mileage until brought out on cross-examination. (R. 782.)

Since he discovered it, he reconstructed his Exhibits and corrected the errors throughout, and Exhibits "H-1," "I-1" "J-1," "K-1," "L-1," "M-1," "N-1," "O-1," "P-1," and "Z-1" were filed in substitution of the original Exhibits. The original Exhibits by stipulation are not printed, the substituted ones taking their place. The principles of them are identical, the only difference being the correction of the error in the original ones.

The explanation of these Exhibits is given when the original ones are introduced (pages 615 to 630). The corrected figures, applicable are given in the Exhibits themselves and on the introduction of substituted Exhibits by Mr. Simson. (R. 781 to 793.)

Exhibit 'H-1'' (R. 2281) is a statement of the earnings and operating expenses of the entire line for the five years ended June 30th, 1908, 1910, 1911, 1912, and 1913, and the four months ended December 31st in each of those years, with the percentage relationship of the four months to the year of each and for the period.

It begins with the Railroad's Exhibit 35, which showed the earnings for those years and for each of the four months in those years and the relationship of each of those four month periods to the years. Then follows the operating expenses similarly set up and the percentage relationship. The operating expenses are divided according to the primary accounts, to-wit:

Maintenance of Way and Structures, Maintenance of Eqiupment, Traffic Expenses, Transportation Expenses and General Expenses. It shows that the average ratio of the earnings of the four months period to the years, is 36.34 per cent, and the average of the expenses of the periods to the years is 36.35 per cent; but this does not spell the entire story, because this average is made up of these five primary accounts and those which are small in amount as Traffic and General Expenses, are also small in percentage, being respectively 34.79 and 34.58. Transportation is the biggest and its percentage is 34.76, which is also small; but Maintenance of Way and Structures, which is a large amount, being over $10,000,000.00, is 41.09 per cent.

Exhibit ''I-1,'' page 2283, is a statement of earnings and operating expenses for the four months ended December 31st, 1907, and the years ended June 30, 1910, 1911, 1912 and 1913 for the entire line with the respective proportions assigned to Arkansas under the Company's new fomula with the per cent relationship for the periods named.

The Exhibit ''H-1'' shows the relationship in earnings and expenses, taxes and rentals, according to primary accounts in each of the last four months of said calendar years compared with the entire fiscal year for the entire line, while Exhibit ''I-1'' shows the relationship in earnings and expenses assigned to Arkansas of the four month periods in each of the said calendar years under the Company's new formula (Exhibit ''1''). Thus:

The average assignment of earnings to Arkansas for each of the four month periods was 10.22, while the average expenses assigned to Arkansas for each of the said periods was 10.32.

Again, the average is brought down by low averages on small items, as Traffic and General; the Maintenance of Way expense being 14.02.

Exhibit "J-1" is a statement of available net income and return on the value of the property in Arkansas for the four months ended December 31st, 1907, adjusted to average conditions as to earnings and operating expenses according to Exhibit "H-1," and the percentage proportions assigned to Arkansas taken from the results of the Company's new formula as constructed in "I-1." It shows a percentage of the return upon the property on all the business in Arkansas, 6.62 per cent.

A clearer explanation of this can be obtained by reading Mr. Simson's testimony at page 616 where he introduced these Exhibits and followed up by the corrected figures, beginning at page 783.

Exhibit "H-1" takes the gross earnings and expenses by I. C. C. classification for the five fiscal years mentioned, with the amount of earnings and expenses in each class for the same identical four months in each of those years and obtained a proportion of earnings and expenses in the last four months of those years to the year, and then takes an average of earnings and expenses for the five year periods.

Exhibit "I-1" ascertains under the Company's new formula the proportion of earnings and expenses assigned to Arkansas in each of the four month periods as compared with the year. This is made without any of the adjustments or modifications which the State makes as heretofore explained. The plan is worked out on the principle that the equation theory carries with it the idea that each period is equal to each other period in order to make the equation the proper one.

Therefore, having obtained these averages they are applied to the four months ended December 31st, 1907, which is reduced to a normal basis thereby which is necessary to make the equating method a proper one. This principle is applied and results in Exhibit "J-1," which shows a return upon the property of 6.62 per cent.

The next Exhibit is "K-1," which is the same in principle as "J-1," except that he reduced the percentage to a mere mathematical average by dividing the aggregate by five instead of taking the actual averages. This is a flat mathematical average, the other reduced to the proportion of each dollar earned in the year and that earned in the last four months of the year, and the expenses likewise. (R. 617-618.)

The return computed on the flat mathematical average instead of the actual average, is 8.03 per cent upon the property in Arkansas on all the business.

Exhibits "L-1" and "M-1," pages 2289 and 2291, are identical with "H-1" and "I-11" except that the computations

are made over a six year period instead of a five year period.

The computations in "H-1" and "I-1" being over the same periods that the Company equated revenue and expenses back to 1907, it was thought to make an Exhibit of the equation periods reduced to the normal average for those five years, would be illuminating.

These Exhibits are even more illuminating as they add another year, included in which are the test months of November and December, 1913. These computations are likewise made on the new formula, and Exhibit "M-1" shows a return on the property from all the business in Arkansas of 6.89 per cent.

Exhibit "N-1" is the same as "I-1" except the old or Douglas formula was used instead of the new formula, Exhibit "I." The result of using the old formula in the assignment of expenses and earnings to Arkansas, and reducing the four months of 1907 to an average or normality, results in a return on the property in Arkansas from all the business of 7.51 per cent. This is the Exhibit which Mr. Simson testified in his opinion was the logical one. While it is based on the old formula without the adjustments which are carried into Exhibit "Y," yet when an average period is taken, the errors are minimized by the average. (R. 641-718.)

There seems to be some misunderstanding as to what was the Douglas Formula. The Company's Exhibit 23 shows that the Company had for years used a formula to report to the Railroad Commissions. This formula assigned earnings and expenses to the given State and is called the Douglas formula. This is the one that Mr. Simson approved and said was a better formula than the new one for that purpose.

Exhibit "23" states that the Company also had a formula for dividing expenses between freight and passenger which it had used uniformly for many years for comparative purposes in observing its own operations. This is not the formula which Mr. Simson has approved, although Mr. Hamilton seems so to indicate in his rebuttal testimony. (R. 855.)

Mr. Simson made no calculations beyond the point of assigning earnings and expenses to the State and did not go into any divisions between passenger and freight, state and interstate. This has been repeatedly stated in his testimony both in the direct and cross examinations.

Exhibit "P-1" (R. 2297), is an application of the old formula to the percentage of the assignments to Arkansas on a mathematical average, and is the same as "K-1" except the old formula instead of the new one is used. (R. 618-619.)

It produces a return on the property from all the business in Arkansas of 9.03 per cent.

"Z-1" (R. 2299), contrasts and compares the result shown by Exhibit "Y" to the normal average for the four months as shown in Exhibit "O-1."( R. 627.)

It will be remembered that "Y" is the State's Exhibit taking the place of "27 A" of the Company. It contains the adjustments and corrections which are necessary in order to show the true condition of earnings and expenses for the four months of 1907.

This Exhibit shows a return upon the property from all the business in Arkansas, 7.51 per cent. It shows that the average conditions for the five year period applied to the true condition as shown in Exhibit "Y" is .98 per cent more than the actual conditions.

In other words, Exhibit "Y" shows a return upon the property from all the business of 6.53 per cent for the four month period; when that is reduced to average conditions, the return is 7.51 per cent.

The amount of return shown in "O-1" and "Z-1" is identical—7.51 per cent.

Exhibits "AA" and "BB" (R. 2259 and 2261), are applications of the same principle to the fiscal year ended June 30th, 1913, as was made in the preceeding Exhibits for the four months ended December 31st, 1907, "AA" being on the new formula and "BB" being on the old or Douglas formula.

"AA" shows a net return from the property in the State from all business is 7.69 per cent, and "BB" a return of even 8 per cent. For explanations of the make-up of the Exhibits, see Record pages 628, 630.

In the year ended June 30th, 1913, the Company was charging 3c per mile passenger fare and was applying the Court Tariff to freight.

Mr. Simson's attention was called to this fact and also to the amount of diminution on freight and passenger traffic worked out in Company's Exhibit "22," which applied the 2c rate and Standard Freight Distance Tariff No. 3 to the revenue received under rates prevailing.

This is what may be called the diminution tables. It assumes the same movement, freight and passenger, would have occurred under the enjoined rates which actually occurred upon the existing rates, no more, no less.

Mr. Simson made the deduction from the revenue shown in Exhibits "AA" and "BB," assuming that the 2c rate and the Commissions Freight Tariff had been applied to the movements during said year.

The result is that under Exhibit "AA" the return would have been 6.9 per cent instead of 7.69 per cent, and under "BB" would have been 7.23 per cent instead of 8 per cent.

If the correctness of the principle of applying diminution tables be accepted, then it is found that the actual return for 1913 under normal conditions would have been either 6.9 or 7.23 per cent, according to whether the new or the old formula was applied.

While somewhat out of the order of the argument, it might be well at this place to consider the proposition involved in the diminution tables.

Mr. Simson stated that it was an impossible assumption when you have statistics of a certain number of passengers traveling a certain number of miles for a given year under a 3c rate, to assume that under a 2c rate just equally that same number of passengers would travel just equally that same number of miles. That as to freight, which is less subject to money conditions, and does not make excursions at low rate, or travel at a less rate purely because of the lesser rate, yet it is a fact that the change in a rate affects the direction of traffic, and therefore the earnings of particular portions of the line and the ton mileage on it. (R. 792.)

So far as freight movement is concerned, the Court can well consider the hundreds of cases decided by the Interstate Commerce Commission wherein it is shown that a change of rate will deflect the traffic from one jobbing center to another. The jobbers of Little Rock and Memphis, for illustration, have had many complaints before the Commission over the interstate rates prevailing in and out of Memphis and Little Rock. Each will assert most positively that the rates in or out of the other city will give that city an undue advantage and deflect natural traffic to it which does not belong to it.

A major part of the work of the Interstate Commerce Commission is adjusting rates between great jobbing and manufacturing centers. In view of these well known facts, to assume that all the freight which would have moved under the Standard Distance Tariff No. 3, which is 25 per cent to 33⅓ per cent lower than the Court Tariff, would have been identical with the movement under the Court Tariff, is to assume a theory which does not exist in fact.

On the passenger side of the problem, Exhibit "42," page 2149, of the Railroad Company effectually disproves the identity of movement under different rates. This Exhibit was put in by the Railroad Company to prove that interstate passengers avail themselves of the 2c intrastate rate by buying at border points and breaking their interstate journey by obtaining intrastate tickets while in the state.

Mr. Hamilton introduced this Exhibit and testified of it (R. 458-459). He explains that June, 1913, was the last full

month in which the Company operated on a 3c fare and August, 1913, was the first full month in which it operated on a 2c fare in Arkansas (since the injunction) and the Exhibit contrasts August, 1913, with August, 1912, the same month of the previous year on a 3c basis and June, 1913. It gives the border stations in the State and compares the traffic under the two rates at them and shows a large increase, and then compares stations in the interior of the State where passengers would have no incentive to re-ticket to cheapen the cost of an interstate journey, with these border stations. (R. 459.)

The Exhibit states that it gives these border line stations and "also tables showing the ticket sales to Arkansas points from interior Arkansas stations, sufficiently removed from the border to make it no incentive to interstate passengers to re-ticket there." (Page 2, Exhibit 42.)

The border towns are Osborn, Rogers, Arkinda, Mammoth Spring, Yarbro and Summers; the interior stations are Jonesboro, Hoxie, Hope, Ashdown, Wilson and Luxora.

Mr. Hamilton and Mr. Nay testified very positively that there was no stimulation of passenger traffic under the 2c rate other than the fictitious stimulation produced by buying at border points tickets by interstate passengers to avail themselves of the 2c rate, but this Exhibit is the only concrete evidence on this subject, and it is quite interesting.

Osborne shows an increase in percentage of 1675 of August, 1913, over August, 1912, but there were only eight cash fares in August, 1912, and in June, 1913, 12 cash fares and one hundred and forty-two in August, 1913, and the ticket sales were eight in August, 1912, twelve in June, 1913, and 142 in August, 1913.

At Rogers there was a percentage increase of 71. The statistics there show that Rogers is a good sized town, they show an increase from August, 1912, to June, 1913 of 467 ticket sales and 48 increase in cash sales. These sales are natural increase over those of previous months, and hence all of the 71 per cent was not border line increase.

Arkinda shows an increase in percentage of 431 which represents an increase in cash fares of 598 and of ticket sales of 759.

Mammoth Spring shows an increase in percentage of 157, but there were only twenty-two cash fares there in August, 1912, and nine in June, 1913, as against 279 in August, 1913, and the ticket sales increased 1,028 from August, 1913, over August, 1912.

Yarbro shows a .40 per cent increase. There was an increase of 241 cash fares and 233 ticket sales.

Summers shows 369 per cent increase on 354 cash fares and 436 ticket sales.

Add the cash and ticket sale of August, 1913; deduct the cash and ticket sales of August, 1912, and the result is 6,208, which represents the total border line increase in Arkansas during this month. Not much over one month's traffic at Jonesboro.

Now turning to the interior stations where as testified by Mr. Hamilton and stated in the Exhibit there was no incentive for this border line buying and which stations would represent the actual increase of intrastate traffic. Jonesboro is the first.

The railroad fares there show an increase in August, 1913, over August, 1912, of 1445 or 33 per cent. This is the largest town that is shown and for an interior town it is rather remarkable that when the rate was reduced 33⅓ per cent that on the two test months contrasting the effect, the travel had increased 33 per cent. This would be absolute proof, if this station be taken as representative of all interior stations, that the decrease of the rate produced a corresponding increase of the travel.

Hoxie is the next interior station, as also shown by the figures a large station. There was likewise an increase of 33 per cent there.

Hope is the next one, and it is smaller than Jonesboro and Hoxie, it shows a 7 per cent increase.

Ashdown, which is somewhat larger than Hope, shows a 31 per cent increase.

Wilson, about the same size as Ashdown, shows a 28 per cent increase, and Luxora, also a town considerably larger than the last two, shows a falling off of 1 per cent. Except Luxora, which is probably accounted for from other causes, as there is no increase shown here and a marked increase on all the other interior towns, the increase is almost as great as the percentage of reduction in rate. Mr. Hamilton has made a computation which effectually disposes of the theory that the same number of passengers travel when the different rates previal. He stated (R. 458) that he took the actual intrastate passenger travel for the year ended June 30th, 1914, and eliminated from it such passengers as their train auditors investigation showed to have re-ticketed (this Exhibit 42 also showed investigations through the train auditors of the re-ticketing), who were really interstate passengers. After deducting what their investigation led them to believe was the interstate passengers who had availed themselves of this privilege, he found that there had been an increase in bona fide intrastate passenger miles of 21 per

cent, but a decrease by reason of reduction in rate, in intrastate passenger revenue of 14 per cent. "The passengers went up 21 per cent; the revenue went down 14 per cent."

The diminution tables assumes an increase of 33⅓ per cent, and assumes that there was no increase in intrastate passenger miles. Therefore, it is apparent that the diminution tables are of no value whatsoever when in fact there is only a decrease of 14 per cent.

The Interstate Commerce Commission in the Western Passenger Fare Cases considered this proposition and said:

"It has been suggested that an increase in the existing fares in the territory here in question will result in a diminution of travel and a corresponding shrinkage in the revenues of the carriers. Travel is influenced by so many different factors that statistical proof of the existence of causal relations between the volume of the movement of passengers and the level of the fares is generally impossible. The general deduction that travel may be influenced by the level of the fares will probably not be challenged in any quarter; nor can there be found much ground for questioning the statement that where the change in fares is decidedly marked, a corresponding change in the amount of travel may be attributed wholly or in large part to such change. On the other hand, where changes in fares are relatively slight, it is doubtful whether any appreciable effect upon the volume of passenger movement will result therefrom. It is likewise obvious that that class of passengers to whom the amount of the fare represents practically the entire expense of a trip will be influenced much more by a change in the level of fares than the class of travelers to whom the charge for transportation represents only a fractional part of the expense of a trip. These observations apply to regular movements of passengers rather than to special movements resulting from the publication of excursion or other reduced fares put into effect by railway companies to meet special situations. However, much or little statistical proof can be adduced in support of any of these generalities is immaterial for our purposes." (37 I. C. C., 1.)

The Court considered this subject in his opinion (R. 923). The Court gives part of the table in Exhibit 442. By some clerical mistake, only the ticket sales column is given, whereas the heading calls for the combined ticket sales and cash sales. The Court said "In the interior stations the increase was not so marked, still noticeable," and then gives the percentage at Jonesboro, Hoxie, Ashdown and Wilson. The Court said "In these interior stations a very large part, if not all of this excess, is attributed to the fact that the

State rate was only 2c rate; the interstate rate was 3c per mile, is beyond question."

The opinion of the Court in regard to Jonesboro, Hoxie and these other interior towns is exactly to the contrary of the evidence given by Mr. Hamilton and the statement in the Exhibit that these towns are selected "Sufficiently removed from the border to make it no incentive to interstate passengers to re-ticket there."

The Interstate Commerce Commission entertains quite a different view of this subject, as shown in the excerpts from its opinion just quoted.

Returning to a consideration of the Exhibits placing the four month period of 1907 upon a normal condition, your attention is called to the statement of this Court, as expressed by Mr. Justice Hughes, that "The wide variation in results obtained on the different hypotheses, each of which is earnestly supported in argument, illustrates the necessity for the keeping of suitable accounts at least during typical periods which will furnish correct statistical information bearing upon the cost of intrastate transportation as compared with interstate, instead of leaving a matter of such intricacy to general expressions of judgment." (230 U. S., P. 559.)

To put the though otherwise: If statistical information is used as a basis to attack rates, that information must be during typical periods. These Exhibits demonstrate that the four months ended December 31, 1907, were not normal. The averaging process is criticised by Mr. Hamilton in his testimony in rebuttal, but this averaging process is but an application of the normality statistics filed by Mr. Hamilton himself, and in carrying them to completion, telling the whole story instead of a part thereof. His Exhibit 35 gives the proportion of the four month periods for the earnings alone.

Mr. Simson accepted that as far as it went, but went further and reduced them to typical periods or as generally referred to in this record, normal periods. Mr. Nay laid down six rules (441-442), which have heretofore been set out to determine the relation of one period to another.

The first, as to a difference in mileage, in this instance, it is small. The next is the number of tons per train and number of passengers per train. The next is the average length of the haul. Each of these have been shown and their variations pointed out. While in some instances small and others great, yet the extent of those variations can best be determined by reducing the expenses and revenues to an average.

The next point which Mr. Nay called for was the rela-

tionship of empty car movement, and it is just like the other matters of expense to be worked out through an average.

The fifth point was the relationship of interstate and intrastate traffic. The variations in it have been shown in the Exhibit 40.

The sixth principle announced by Mr. Nay is the one that is largely the predicate for Mr. Simson's Exhibit, that is the relationship of Arkansas to the entire line.

Interstate and intrastate traffic are so interwoven that it is difficult, if not impossible, to separate them. The business of a railway system is conducted as a whole; each state is but a segment.

For instance, the repairs of passenger and freight cars are considered as a whole and divided between States and the entire line in the relation that the passenger car miles and the freight car miles respectively bear to the whole passenger car miles and the freight car miles.

Therefore, the expenses assigned for the repairs of equipment will necessarily depend upon the relation of the movement in the given state to the movement on the entire line. While a somewhat different plan is worked out for locomotive repairs, the principle is the same.

The General expense of every kind and character is assigned to the State on the overhead basis and that depends upon the assignment of all the other expenses.

The revenue is likewise affected by the relation of the State to the entire line as the interstate revenue is made up of movements partly in Arkansas and partly in other States.

Mr. Hamilton criticised the averaging basis for not including the taxes and hire of equipment. Mr. Simson answered that criticism by pointing out that in the equating process used by the railroad through which it transposed a two months test period of expenses between state and interstate back to 1907, and by which it transposed expenses and earnings of 1913 back to 1907, that hire of equipment and taxes were not equated but the actual figures for each year were taken.

His Exhibits were merely to show what would be a typical period along the same line that the railroad had assumed to equate one period into another one. He states that hire of equipment, while not classified by the Interstate Commerce Commission as operating expenses, yet is so closely analygous to it that it would be proper to take an average of it although the railroad had not done so in its equating Exhibits.

He makes a calculation, showing that it would not effect any change in percentages. (R. 890.)

Taxes, he said, should not be averaged, as each year takes care of it on the basis of the value of the property of that particular year.

Mr. Hamilton puts in Exhibit 58 in which he averages taxes, hire of equipment, and the value of the property for a series of years. Mr. Simson says that this system is absurd, and Mr. Hamilton says that he does not believe in it (R. 850), and therefore it may well be dismissed as no one will stand sponsor for it.

It is confidently submitted that these calculations demonstrate that had a typical period been taken, the railroad's return upon its property would have been upwards of 7.50 per cent.

It would be much better to have the actual conditions for a series of years instead of a four months period. But if the case is to be tested on a four months period, as the railroad seeks to have it done, that four months must be examined to see if it is typical of the whole. If the figures are not available, then strike an average and make it typical; the next best result is found, and that is what is done here.

## NO CONFISCATION SHOWN EXCEPT THROUGH THE FORMULA APPLIED TO INTRASTATE.

No one can question seriously after going through the preceding Exhibits that for the four month period of 1907 the Railroad was actually earning upon all of its property in Arkansas at least 6.50 per cent, and that it is equally certain that on average conditions it was earning at least 7.50 per cent, and even if the "Diminution Tables" are applied to the earnings where a 3c passenger rate and the "Court Tariff" were in effect that the road was earning at least 7 per cent.

These statistics having established these facts clearly and convincingly, although no such burden is on the State in a Rate Case, the situation then develops almost precisely as it did in the Iron Mountain and St. Louis Southwestern cases.

Mr. Justice Hughes, after stating the earnings interstate and intrastate, the value of the property as agreed upon, the operating expenses together with taxes and rentals, showing that the Iron Mountain was making an annual rate of return of 7.50 per cent upon the value of its property, upon its entire business, and the St. Louis Southwestern of more

than 10 per cent, said: "The showing thus made, of the returns from the combined business, makes it entirely clear that the ultimate conclusion must depend upon the certainty of the proof with respect to the segregation of the results of the intrastate operations. That is, the controlling questions concern the division of the expenses between interstate and intrastate transportation, and the determination of the share of the total value of the property which is assignable to the latter and upon which the rate of net return is to be computed." (Allen vs. St. Louis, Iron Mountain & Southern Railway Company, 230 U. S., on page 557.)

There is no presumption that intrastate traffic is more expensive than interstate traffic. In the case known as the "Western Passenger Fares" decided December 7th, 1915, by the Interstate Commerce Commission, 37 I. C. C., 1, the Commission definitely declined to make such assumption is regard to intrastate passenger service. See page 30.

The Commission stated: "There are, it is true, two terminals involved in all state journeys and usually only one in any one state in an interstate journey. But the average haul for the interstate passenger is greater, and the character of the equipment used in the interstate business will average somewhat higher than in the strictly intrastate business."

In this case there is absolutely no testimony of any extra cost of state over intrastate business other than that worked out through this Formula, and which Mr. Hamilton and Mr. Nay say is to be substituted for the opinion evidence on this subject given in preceding Rate Cases.

Eminent railroad officials such as attracted the attention of the Court in Simpson vs. Sheppard, 230 U. S., 352, did not appear in this case to support the extra cost theory. It is supported solely through the Formula. The Formula is supported by the Comptroller of the Rock Island Lines, one of the authors of this Formula, whose road has a similar case in Oklahoma under it, and Mr. Hamilton, the Supervisor of Efficiency of the Frisco Road. One or two other witnesses testify as to one or two particular items in it.

The learned trial judge assumed that the intrastate was more expensive than the interstate, and stated, "That it must be more requires no expert's testimony." (R. p. 929.)

Then the Court proceeds to state that the more frequent stops and starts causing damage to the engines and cars, the fact that the local trains have to do their own switching at all intermediate stations causing a loss of time for which compensation is made to the train crew, and other matters relating to the performances of the local trains, contribute to the additional cost of local trains as compared with the through.

His statement of the reason for this extra cost is almost identical with the testimony reviewed by Mr. Justice Hughes in the Minnesota Rate Case on pages 462-464. (Minn. Rate Case, 230 U. S., 352.)

The testimony of Mr. Hamilton, page 205 of the record, is that the local train is made up of 85 per cent interstate and 15 per cent intrastate, or, to be exact, 85.40 per cent interstate and 14.60 per cent intrastate.

It is rather difficult to see how the heavier expense of the local train can work out a heavier expense for the intrastate traffic when over 85 per cent of its load is interstate traffic.

Aside from the presumption of the compensatory character of the rates which the State may rest upon until overcome by clear and convincing evidence, there are certain statistics in this record approved by the railroad accountants which effectually dispose of any theory that the net results of the intrastate are not as compensatory as the net results of the interstate. These figures were compiled by Mr. Simson and approved by Mr. Hamilton. (R. pp. 874-876.)

In 1907 the Arkansas intrastate revenue per ton per mile was 24.79 mills. The interstate revenue per ton per mile in Arkansas was 7.76 mills. The combined Arkansas revenue per ton per mile was 8.38 mills. The revenue per ton per mile for the entire line of the Frisco was 9.52 mills.

The passenger revenue per passenger per mile intrastate in Arkansas during 1907 was 20.07 mills; that is two cents and a small fraction; on the interstate passenger business in Arkansas was 18.9 mills and on all passenger business in Arkansas 19.4.

This Formula on page six makes certain assumptions. It assumes first: that the terminal cost per ton of state freight is neither more nor less than terminal cost of interstate freight at the same station in carloads or less than carloads respectively; second, that the line cost per gross ton mile of state freight is neither more nor less than line cost of interstate or transtate freight on the same train in either carloads or less than carloads. That as an average the terminal cost per ton interstate freight going into, coming out of, passing through a State is the same at both terminals, and the same as the average terminal interstate freight within the the State for carloads or less than carloads respectively. And the same principle is applied to passengers.

These statistics show that the road was receiving more than one mill per mile for each passenger hauled intrastate

over each passenger hauled interstate during the year 1907, the 2c year that is being contested. They show that for each ton of freight intrastate hauled within the State that the company received more than three times as much revenue per ton per mile as they did for freight hauled interstate.

The only possible difference in the cost of the two classes of traffic is the terminals as pointed out by the Interstate Commerce Commission. This is compensated even on the same passenger rates by the character of the equipment used in the intrastate and the longer haul of the interstate, and in this case by the higher rate prevailing in the intrastate over the interstate.

On the freight side three times the revenue per ton per mile compensates for the extra terminal cost. Yet in view of these facts the extra cost theory worked out under the formula in Exhibit 61, the last word of the railroad on the subject, gives this grotesque return for the four months period of 1907: The return on the total business is 4.50 per cent (whereas it should be 6.51, if the corrections which were undisputably established and practically agreed to in Exhibits "V," "W" and "X" were made as shown in the State's Exhibit "Y"), a deficit is shown on intrastate freight, a deficit on intrastate passenger, a return of 5.61 per cent on interstate freight and a return of 7.05 per cent on interstate passenger. Yet this same road with others, in the Western Passenger Fares Case, convinced the Interstate Commerce Commission "that the business done by passenger train service is less profitable on the whole than is the freight service in this territory." (37 I. C. C. on page 33.)

No other word than grotesque can adequately describe such a result. The interstate freight showing a return of 5.61 per cent on rates producing revenue less than one-third per ton per mile than the intrastate freight, and the intrastate freight showing a deficit of $9,308.59. If the corrections were made on this Exhibit as they were in "Y" it would raise the return on intrastate freight rate to probably a "trace," and on interstate freight about 7.50 per cent.

One reason given by the trial court for the extra cost of intrastate carried on the local trains was a quotation from Mr. Nay as to how seriously the shorter haul affects terminal expenses to this effect: "If the terminal expense is thirty cents per ton on a haul of thirty miles, it will make one cent per ton every mile, while if the haul is sixty miles it will only amount to one-half cent a mile." (R. p. 929.)

Mr. Nay doubtless did not intend this to be taken as the Court took it as affecting terminal expenses, but it is an explanation as to how terminal expenses are spread over the length of the haul.

Exhibit 39 of the Railroad Company, Record page 2143, shows an average intrastate freight haul for 1907, 21.26 miles; for the six months of 1913, 25.75 miles. Corresponding interstate freight haul 81.97 miles, and for the last six months of 1913, 76.20 miles.

As these extra cost relationships grow out of the test period of 1913, which was brought by *nunc pro tunc* proceedings back to 1907, the 1913 figures are the comparable ones here.

In round numbers the interstate freight haul was three times that of the intrastate haul, and the intrastate revenue more than three times per ton per mile the interstate.

Certainly such established facts should bring out close relationship between the net return on the property when the terminal cost is no more per ton intrastate than interstate and no more per mile intrastate than interstate, and yet the return worked out through this Formula is the grotesque one indicated.

Following the matter up on the passenger side this Exhibit 39 shows in 1907 the state passenger haul was 18.84 miles; interstate for the same period, 42.59. For the period containing the test months the intrastate haul was 19.06, and interstate 39.89.

Thus it is seen the passenger haul interstate is approximately double that of the state, while the rate per passenger mile is 1.17 mills more per mile than the interstate passenger per mile. Yet this Exhibit 61 in application of the Formula brings out a deficit on intrastate passenger $4,630.31 and a return on interstate passenger of 7.05 per cent, and if corrected by Exhibit "Y" would increase to over 8 per cent.

Certainly in view of these facts the Court must approach the subject of the extra cost of intrastate traffic with no presumptions that it exceeds the interstate, for there is naught in this record save the Formula tending to prove it and much to refute it.

Your attention is next invited to the Formula itself.

## THE FORMULA SUSTAINED ONLY BY OPINION EVIDENCE.

Mr. Justice Hughes, speaking for this Court in the case of Allen vs. St. Louis, Iron Mountain & Southern Railway Co., 230 U. S., on page 559, said:

"The wide variation in results obtained on the different hypotheses, each of which is earnestly supported in argument, illustrates the necessity for the keeping of suitable accounts, at least during typical periods, which will furnish correct statistical information bearing upon the cost of intrastate transportation as compared with interstate, instead of leaving a matter of such intricacy to general expressions of judgment."

Ostensibly to comply with what was said by the Court in this, and other cases decided at the same time, the railroad companies have prepared this Formula and they have worked up certain statistical information for a two months period in 1913. This statistical information does not bear upon the cost of intrastate transportation as compared with interstate as indicated in the above quotation should be done, but it was a mere gathering together of the costs on the trains and in the stations in great detail and then dividing those costs so gathered in multitudinous ways, according to this Formula.

The primary division of them is between line and terminal. Any errors in, or overloading of, the terminal expenses by mistaken methods of computation or fallacious bases, throw an undue burden upon the state traffic as it becomes chargeable ordinarily with two terminal expenses to one for the interstate, and much of the interstate (the transtate) having none. Therefore, erroneous allocation of expenses to the terminal side of the equation readily runs to extra cost against the intrastate traffic.

The railroad's Exhibit 40, page 2145, gives the relation of each class of traffic to the other. It is seen therefrom that the total ton miles of intrastate freight in Arkansas is composed of 3.65 per cent intrastate and 96.35 per cent interstate, and the total passenger miles for the same period 43.77 intrastate and 56.23 per cent interstate. If a given expense which is common to freight and passenger, such as the maintenance of the track, is a given amount, say a million dollars, and is divided between freight and passenger erroneously, assigning too much to passenger, the intrastate suffers to the extent of the erroneous assignment. To illustrate: if the engine ton mile erroneously assigns $100,000.00 more to passenger than to freight than the true amount, then as to that $100,000.00 thus erroneously assigned, the state passenger must bear 43.77 per cent of it, whereas only 3.65 per cent of it would be chargeable to the state if it were on the freight side of the equation.

Many other bases in the Formula, too numerous to mention, if erroneous, would unduly burden the intrastate.

The line and terminal divisions are not made by the statistical information gathered in the test months. The line and terminal allocations are made by this Committee of accountants and statisticians who prepared the Formula. The statistical information merely fits into the holes prepared by the statisticians for it to fall into after it is gathered.

It is purely a matter of opinion where the line of cleavage runs between line and terminal as defined in this Formula. Take the front page of it and look at the diagram therein. Branch lines are brought into main lines; foreign lines cross the main lines, some at the same point with the branch lines.

The testimony shows that the service performed, except in some negligible clerical matters in receiving or discharging freight or passengers at these points between foreign lines and branch lines is identical, yet one is classified as terminal, the other classified as line.

In railroad parlance a terminal is a division point where trains are made up and broken up, and in the testimony here you will find some confusion in the use of the word "terminal" as used in the Formula and as used in railroad parlance. At division points trains are made up and broken up, both freight and passenger. The through freight trains which carry the bulk of interstate traffic run from one division point to another, and in each one the cars composing it are made into other trains and go out under other captains.

This great item of expense in division yards is classified by the Sanhedrim as line.

As shown in the foregoing statistics the intrastate traffic in Arkansas has an average haul of one-third of the interstate; it is also in testimony that division points are approximately one hundred miles apart. Therefore, it is apparent that the freight having the longer haul will use these division points more than the freight for the shorter haul. This expense is divided on a net ton mile basis between state and interstate, thus making each mile of intrastate bear the same proportion of each mile of interstate traffic, when as a matter of fact quite little of the intrastate traffic has received this service in the division yards. When it is remembered that the average intrastate haul is 25 miles this becomes apparent.

One of the big items of expense divided between line and terminal is the repairs to locomotives, repairs to passenger cars and repairs to freight cars, and the renewals and depreciation of each class. The Formula states frankly that this is a matter of opinion which must be determined by experts. (Formula, page 13.)

The Formula contains a statement of certain percentages derived as an average from letters written by General Managers. This, however, was abandoned and in lieu thereof Mr. Symons was called as a witness to allocate these expenses betwen line and terminal from his expert knowledge thereof.

Mr. Symons showed great experience in mechanical work and impressed the trial court as being a witness whose expert opinion could be relied upon. If you will, however, read his cross-examination it will be seen that he utterly failed to comprehend either the subjects to which he is testifying, or else the division as worked out in his formula between line and terminal.

He states that 80 per cent of the injuries to freight cars is due to rough handling. (R. p. 486.)

He says the percentage of repairs to passenger cars due to rough handling is very small.

In regard to locomotives he has not carried separately a factor expressed in figures representing rough handling, but he had in mind the fact that local switching is harder on engines than through movement. (R. p. 487.)

He was asked how much of the injury to freight cars he attributed to track conditions and stated he had not made any subdivision of the injuries resulting from track condition, but says in a general way that almost all derailments are caused by track conditions in combination with speed, and the effect of the derailments is damage to the equipment.

He was asked how he classified such damage to equipment between line and terminal and stated he classified the rough treatment primarily to terminal. Then knowing that some of it occurs in the character of line service, making up and breaking up of trains, he subtracted an amount which in his judgment is fair and reasonable to proportion it to line expense. (R. p. 488.)

He was asked how he classified injuries due to various track conditions such as derailments, oscillation, low joints, and so on, betwen line and terminal in the contributing causes for car repairs and stated he had not classified derailments in line and terminal. He had not considered track at all as a separate item. He had considered primarily as the basis rough treatment and set up against that normal wear. He states he was not including bad track as a part of rough treatment and refers to that primarily as improper handling of cars, especially in terminals and to a certain extent on the line. (R. p. 489.)

He then describes switching in hump yards and ordinary yards, the effect upon the cars, and states that when the bill

would come for such repairs as were occasioned by such handling as the cars had received that he would distribute it 80 per cent terminal and 20 per cent line, based on his observation and experience. (R. pp. 490-491.)

He states that his plan of distribution of engine repairs is identical or very close to the distribution made by Wellngton n his work entitled "The Economical Theory of the Location of Railroads." While his percentages are different, as he states, due to modern equipment, his analysis of the component parts are practically the same. He claims to have originated his analysis before he saw Wellington's book, but they are practically the same. (R. pp. 493-494.)

The first contributing cause considered by Wellington is time and exposure.

Mr. Symons was asked how he provided for that in his distribution of cost and says he took care of it in a general way in the life of a car or the life of an engine. He assumes that it is a factor now as it was in Wellington's time; but he has not considered it in terms of percentages, but has always considered it.

This factor is practically depreciation, and Mr. Symons was pressed to tell how he had treated depreciation between line and terminal. Wellington had ascribed six per cent to this factor, but Symons was unable to give any per cent for it, and unable to show in any place that he had divided this well known factor between line and terminal.

To thoroughly understand Symons it will be well to turn to the evidence relating to the Wellington and Berry tables.

Mr. Simson (R. 606) put into evidence Exhibit "F," a distribution of expenses of repair of locomotives, passenger cars, freight cars and work cars between line and terminal, based on the Berry table. He obtained the Berry table and the article supporting it from the proceedings of the 5th Annual Convention of the American Railway Engineers and Maintenance of Way Association held in Chicago March 15th to 17th, 1904. He took this table as near as the information therein given will permit, and it is fairly close, and assigned to line and terminal the percentage of each contributing cause following the definition of line and terminal in the Formula.

He sets forth the Berry table and then follows it with his distribution. The time and exposure which is referred to (which is depreciation) he treated as overhead. He found that the Wellington table was very close to the Berry table.

There is little difference in the distribution of locomotive repairs and passenger car repairs between Symons and Berry and Wellington, but there is a radical difference between freight car repairs assigned to line and terminal.

Symons table (Exhibit 43, page 2155) assigns freight car repairs 35 per cent to line, and the Berry table 62 per cent (speaking in round numbers). This makes a difference of 24.50 per cent, or expressed in dollars for the two months test period is $15,386.47. If those two months be taken as representative of the year it would make $92,382.82 excess charge freight car repairs to terminal through the use of the Symons table instead of the Berry table.

Mr. Simson was cross-examined at great length and with some severity by counsel for the Railroad Company as to his adaptation of the Berry table to the Formula. (R. pp. 753-757.)

He stated that he had no engineering or mechanical knowledge qualifying him to make these tables; that he did not make them, but merely as an accountant distributed the Berry table to the Formula according to the definition of line and terminals as given in the Formula and there was some overlapping in the elements.

Mr. Berry's article is quoted from at some length, page 754 to 757.

Mr. Nay testified that he knew Mr. Berry very well; that he had been the Chief Engineer of his railroad, but he says that he has not had experience in Maintenance of Equipment like he had had in construction work and in Maintenance of Way work. He says he is a high toned, straightforward man and that it is not likely that he would get up a table to read before an association of technical men without thoroughly preparing himself on the subject. (R. p. 361.)

(The objection to Mr. Berry's being a civil engineer, not a mechanical one, loses its force when the whole point of his paper was how to construct a road so as to cause the least damage possible to equipment; and his study was of construction and improvement of roads so as to minimize the injury to equipment and as a necessary part of that study gathered data as to the contributing causes of injuries to equipment so that in the construction and re-construction of railroads this would be a known factor and avoided as far as possible.)

The Wellington book is much quoted from and referred to by Mr. Symons and other witnesses. It is an old text book upon the subject written thirty or more years ago. The percentages therein would naturally be different under modern equipment as compared with the equipment at the time the book was written.

Mr. Symons states that it is a standard work and states that his analysis is practically the same as that of Wellington's.

Mr. Berry's article uses the Wellington table as a basis and he applied to these bases the percentages which he derived from several years of experimental work on Union Pacific Railway to find the contributing causes of injuries to equipment.

The table is found on Sheet 1 of Exhibit F, page 2230. It is a table giving in percentages the distribution of contributing causes of repairs of all classes of equipment. Take the freight car repairs as an example. Freight and work car repairs are 43.25 per cent of all the repairs to equipment. Distributing the contributing causes gives this result for freight and work car equipment: time and exposure, 6 per cent; stopping and starting, 20 per cent; switching, 16 per cent; curvature, 2 per cent; grades, 20 per cent; distance, 36 per cent. Mr. Simson merely assigns these elements into line and terminal.

He treats the time and exposure as overhead and distributes it 3.72 per cent to line and 2.28 per cent to terminal on basis of the located charges. Stopping and starting he assigns entirely to terminal; switching entirely to terminal; curvature, grades and distance entirely to line, the result being 61.72 per cent line and 38.28 per cent terminal, as against Symons 35 per cent line and 65 per cent terminal. (Exhibit 43, page 2155.)

Mr. Symons was asked how he distributed the item of starting and stopping between line and terminal; he stated in the time studies which he used as supplementary to and in support of his analysis he found the percentages originally used did not take into account the allowance for starting and stopping trains at stations, and he assigned to locomotives and freight trains for the purpose of reaching a fair division between line and terminal 12 minutes for the starting and stopping at stations and used that 12 minutes to show the amount of terminal work a locomotive does and compares that with the actual time the engine was on the road less the time when it was waiting for trains and the delays when it would not be doing any work, but he says this time element does not enter into car repairs. (R. p. 498.)

He says he divides the elements of starting and stopping between line and terminal and was asked to give the total amount ascribed to this cause, but stated that he did not know how to determine that with such precision as to express it in dollars and cents, but that he has considered it as a distinct element of injury, but not expressed separately. By confining himself to line and terminal he defined the scope of work he had in charge. (R. p. 500.)

He had used certain sum representing engine repairs and

divided it minutely in dollars and cents, but declined to divide this item of starting and stopping into dollars and cents without knowing what it amounted to in its physical effect. (R. p. 501.)

He recognized it as a considerable item of injury to locomotives but not expressed in his tables other than reflected in the respective proportions assigned to each according to his judgment. (R. p. 501.)

The various elements outlined in the Berry table, and the Wellington table which he recognized as authority, are put before him and he is asked how much he ascribed to each and he is unable to answer as to any of them; merely falls back on his experience and judgment and relies on his experience and judgment in giving percentages to line and terminal.

It is impossible to abstract the cross-examination of this witness to do justice to him, or to the subject, and you are asked to read it with the confident conviction that when you have you will conclude that this was "leaving a matter of much intricacy to general expressions of judgment."

A class of expert opinion to which your attention is particularly directed is that of Mr. Frank Nay, one of the authors of this Formula. In order to see particularly the force of his expert opinion a little ancient history might be applicable and this history is developed in Mr. Nay's cross-examination. In the Iron Mountain and Southwestern Railway Rate Cases, Mr. Nay first appeared as the principal witness for the railroad in support of the revenue theory for dividing expenses and property. The State in that case to demonstrate that railroad expenses could be allocated instead of being distributed in accordance with the judgment of railroad officials, set up a Formula for certain parts of these expenses. It took the railroad company's assignment of revenue and expenses to the state and its assignment of freight and passenger and began the problem there. It divided expenses, broadly speaking, into three classes: yard expense, station expense, and train expense.

On the passenger side it separated mail and express from the passenger traffic on a space basis and used passenger miles to distribute train expenses between state and interstate. It used the respective number of passengers at stations to distribute station expenses between state and interstate.

On the freight side it divided the trains between local and through and divided train costs of each on the ton miles respectively of state and interstate on each class of train..

The station expenses were divided on the respective tons

handled there, state and interstate, and the yard expenses on the cars in and out of the yards in state or interstate traffic, respectively.

Mr. Hamilton states that this Formula of the State in the Iron Mountain case might for comparative purposes be considered the background of this Formula. (R. p. 74.)

It will be remembered that Mr. Hamilton was then one of the assistants to the accountant who prepared this Formula in the Arkansas case.

Mr. Nay admitted that the State in the Iron Mountain case had the idea of applying the use basis in its Formula; that he now frankly admits it on the stand although he was an advocate of the revenue basis at the time. (R. p. 320.)

Mr. Nay further stated that they were now aiming at the same thing the State aimed at in the Iron Mountain case, but he thinks they are getting it more accurately. (R. pp. 262-263.)

In the Iron Mountain case after this Formula was introduced, Mr. Nay was put upon the stand again and criticized almost, if not every basis used therein.

In that case one month was used to represent a six months period. Mr. Nay vigorously criticized this as unsound. (R. p. 371.) And in this case they take a two months test for one year and also as a basis to relate back to a period six years prior thereto; and yet he gives his opinion that it is sound in this case. (R. pp. 370-380.)

Another criticism of the State's Formula in the Iron Mountain case was that the expenses were grouped in subdivisions, divided on various bases many of which had little or no relation to the expenses as he then thought, but now uses these same factors in some instances in the same way. The method was complicated and was capable of being adjusted or manipulated. He admits that the Formula in this case, as that one, was capable of being manipulated so as to bring about different results by changing the basis for one or the other of these different factors by anyone who wants to produce a certain result. (R. pp. 385-386.)

He criticized the State's Formula in that case for separating expenses of freight and passenger on a train mile basis and dividing the expenses between local and through trains on a car mile basis on the ground that either the train mile basis should have been used in both cases or the car mile basis should have been used in both cases.

He states that he has changed his opinion on that subject now and that passenger and freight, and local and through, should be divided on different bases. (R. pp. 390-391.)

He says now that the passenger and freight should be

divided on the engine ton mile and the local and through on the gross ton mile. He states that in the former case that he said the revenue basis was the best basis for dividing these expenses. The State's accountants thought a car mile basis was the best.

Mr. Hamilton and Mr. Ludlam put in the car mile basis, and they were as honest in supporting it as he was, he admits, and now he comes with another basis and is no more honest now than he was then, but in his judgment this is the best approximation to date. (R. pp. 390-394.)

He criticized the use of train mileage to divide injuries to person, damage to property, etc, injured by trains on the right of way because such casualties do not occur with regularity or with reference to the train mileage. In this Formula those expenses are divided on the gross ton mile basis.

Mr. Nay was questioned as to whether the same objection would not apply to this basis as he had applied to the train mileage basis before; that is, that the casualties do not occur with regularity, but he stated that he thought the basis used in this Formula was correct. (R. pp. 394-400.)

In the Formula of the State in the Iron Mountain case on the freight side the expenses were divided between local and through trains and not so divided on the passenger side, but apportioned on a space basis, and Mr. Nay stated that it seemed to him to be consistent that the same division should have been adopted between the local and through passenger trains as well as between the local and through freight trains; that local and through passenger trains were just as distinctive as through and local freight trains. He says he has changed his opinion on that subject of division now. (R. p. 402.)

He objected to the division of Maintenance of Way expenses between local and through on a car mile basis because car miles do not take into consideration that 90 per cent of the expenses of Maintenance of Way was due to the weather and natural causes and yet he now advocates an engine ton mile basis for dividing Maintenance of Way expenses between freight and passenger. (R. pp. 404-410.)

The Formula provides for dividing expenses in the minutest detail according to Mr. Nay, but this minute detail seems to be the adoption of various bases which at best are approximations as he admits, but Mr. Nay says that these bases are used only in dividing expenses which cannot be definitely assigned to any one class of traffic. Where there is common expense used in connection with two kinds of traffic there must be an apportionment, there could not be an assignment. He says that these common expenses are

less than one-half of the total expenses, but does not indicate how much less. (R. pp. 431-432.)

This review of Mr. Nay's attitude in the two cases is useful to show the value of his opinion, and his opinion is the cornerstone of this case. He was just as honest and just as able and just as forcible in supporting the revenue basis in the other case as he is in supporting this Formula now. He was just as vigorous in his attacks upon the Formula prepared by the State in that case, which used in a limited way factors that are used in this Formula, as he is in supporting these factors in the present Formula. That Formula was anathema to him; this one is holy. A will-o-the wisp is a safer leader than this variable expert on Rate Cases.

Without following into minute detail the various bases attention is called to these which are supported only by opinion testimony:

a. The division of component parts of the road between line and terminal as diagramed on page 2 of the Formula.

b. The division of tracks between line and terminal as defined on page 4 of the Formula which is followed throughout the Formula in all of its ramifications and the expenses apportioned according to this classification made by the Committee.

c. Division of all the expenses and property between line and terminal, which from its nature is an arbitrary division and in many instances inapplicable to the facts.

d. The expert apportionment of locomotive, passenger car, freight car and work car repairs, renewals and depreciation between line and terminal.

e. Division of telegraph and telephone expense account 14 arbitrarily between line and terminal on basis of 50 per cent each.

f. Division of Buildings, Fixtures and Grounds, account 16, on the numerous bases therein between line and terminal and later between freight and passenger.

g. Division of line expense between freight and passenger on engine ton mile basis.

h. Apportionment of passenger expense between coach and pullman, mail and express on car foot mile basis.

i. Apportionment of line freight expenses between local and through trains on the gross ton mile basis and the apportionment of this expense on the net ton mile basis between state and interstate.

j. The assignment of traffic expenses on the terminal side and dividing the common traffic expenses on the line units.

k. Adjustment of non-revenue expenses and the apportionment of overhead expenses on the basis of direct charges.

l. The apportionment of the value of property to freight and passenger, line and terminal, state and interstate, on the basis of Transportation charges.

m. The apportionment of locomotive values on one basis and car values on another.

These various bases may or may not be right according to the opinion of the person called upon to make the apportionment.

Instead of gathering the statistical information indicated in the Arkansas case should be gathered to determine the relative expense of state and interstate, the railroad has gathered two months statistics of expenses and apportioned them on a Formula depending in every material factor on the weight to be attached to the opinion of those who prepared the Formula to apportion these expenses.

The Formula does not contain the information called for by the decision. It prescribes numerous methods by which these expenses may be distributed or apportioned or guessed off, and these methods are merely supported by the opinions of the bright and capable railroad accountants who are experts in Rate Cases.

## THE FORMULA IS MATHEMATICALLY DEMONSTRATED TO BE WRONG.

The railroad's Exhibit 4, page 2 (R. p. 1962), states: "Proceeding on the assumption, as indicated by the principle laid down in the Formula filed as Exhibit 1, that it costs the same per ton for a given terminal or station handling of a ton of intrastate freight that it does for such handling of interstate freight and further, that it costs the same for the haulage of a ton mile in intrastate freight that it does for a ton mile of interstate freight." * * * *

"This process assumes that the average terminal cost, per ton handled, in Arkansas, is closely reflective of the average cost per ton for similar service in the other states in which the St. Louis & San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per ton mile in the other states in which the St. Louis & San Francisco Railroad operates." On page 3 it is stated: "It is not considered that these assumptions are violent, for the reason that operating and traffic density conditions in Arkansas are thoroughly typical of such conditions upon the railroad as a whole." The same assumptions are made in regard to the passenger traffic. (p. 4.)

The statements in this exhibit were read to Mr. Nay and he was asked, assuming those statements to be correct, if the multiplication of the cost of two terminals by the total number of tons of revenue freight handled would give the total terminal cost for the entire line, and said that would be true providing the cost per ton for the entire line is exactly the same as the terminal cost per ton in Arkansas.

He was asked in regard to the line cost if a multiplacation of the haulage cost by the total tons moved one mile of the revenue freight would give a total haulage cost of revenue freight for the entire line, and stated provided the haulage cost for the entire line is exactly the same as in Arkansas it would.

The same questions were put to him in regard to the terminal cost of the passenger and the line cost on the passenger side excluding the non-revenue passenger. Mr. Nay says the same principle would apply as to freight providing the conditions are the same. (R. pp. 419-424.)

Mr. Hamilton states that if a proper allocation of terminal expense and of line expense on the Frisco Road as a whole were made then if you will follow the process used by Mr. Simson in the exhibit to which attention will be called, the results should be the actual operating expenses of the Frisco Road. If the total expenses of the Frisco Road were analyzed as they were in Arkansas and divided between line and terminal and then the traffic units applied to them, as a matter of mathematical accuracy it would produce the total expenses of the railroad. (R. p. 863.)

The first Exhibit filed by the State was Exhibit "A," which was a statement of the unit cost, line and terminal, freight and passenger, for the months of November and December, 1913. (R. p. 2216.)

This Exhibit corrects the method of computing the terminal costs used by the railroad. The railroad had made the mistake of computing it at the rate of expense per ton instead of expense per ton per terminal. (R. pp. 592-594.)

The concrete result of it was this: The railroad had terminal expense on freight of 36.486 cents and it should have been 31.139 cents. The railroad had a mileage equivalent therefor of 78 miles, where it should have been 67 miles.

On the passenger side the terminal expense should have been 5.433 cents instead of 8.677 cents and a difference in mileage equivalent of four and one-half miles instead of seven. These figures were used by the company to ascertain the interstate revenue to assign to Arkansas adding the equivalent mileage to the actual mileage in order to compensate for the terminal expenses without the State.

Mr. Hamilton admits that the company's unit costs were wrong and that Mr. Simson's figures as shown in Exhibit "A" were correct. (R. p. 826.)

Therefore, it is unnecessary to follow the calculation and is also unnecessary to consider Exhibits "B" and "D". These Exhibits were made by Mr. Simson on Mr. Hamilton's unit costs and were filed and explained before Mr. Hamilton discovered and admitted the error of his unit costs. They were merely presenting the same problem which is presented in Exhibits "C" and "E" on the assumption that Mr. Hamilton's figures were right, but as Mr. Simson's are acknowledged to be correct, Exhibits "B" and "D" have no further office in the case. (R. p. 826 and 862.)

However in his explanation as first given on "B" and "D," the principle may be found stated more clearly than in "C" and "E." "C" and "E" merely substitute Mr. Simson's unit costs for Mr. Hamilton's.

These Exhibits have constructed the operating expenses on the line north of Red River using the number of tons of revenue freight moving and applying the terminal cost per ton for each terminal and applying the haulage cost per ton per mile and applying on the passenger side the terminal cost for each passenger multiplied by two to account for the terminals for each passenger, the same as the freight.

Haulage cost was multiplied by the number of revenue passengers carried one mile. (R. p. 598-599.)

Therefore, it is apparent from the statement of Mr. Nay and Mr. Hamilton that if these terminal and line costs were correct and if the statement of Exhibit 4 is correct that the line and terminal cost in Arkansas was closely reflective of the line and terminal cost throughout the system, then this process should bring the actual operating expense of the Frisco Railroad.

Exhibit "C," page 2224, is a statement of the cost of handling freight and passenger traffic and mail and express on the entire line of the Frisco Road north of Red River for the test period of two months ended December 31st, 1913, and the seven fiscal years ended June 30th, 1914, computed by the corrected basis of unit costs as shown by the State's Exhibit "A."

For the two months period computed by the line and terminal units the expenses for that period were $5,498,901.06; the actual operating expenses for that period as shown by the company's records $5,215,791.43. This shows an excess of total expense as computed on the cost units over the actual operating expenses of $769,109.63. Applying the same process to the years is found an excess of expense as constructed

on the units over the actual expenses, for the year 1914, $3,257,472.34; for the year 1913, $5,751,142.86; for the year 1912, $3,475,477.05; for the year 1911, $3,123,949.71; for the year 1910, $4,298,713.15; for the year 1909, $5,265,916.75; for the year 1908, $3,416,744.84.

This Exhibit contains a note that there is not included in the operating expense per the company's records, any expense in Texas, but there is included in the expense computed on the terminal unit and haulage costs the terminal expense for such numbers of tons and such numbers of passengers as cross the Red River. This grew out of the fact that the line of the Frisco Road which is in this suit terminated in the middle of Red River, the traffic being carried therefrom by another line owned by a Frisco corporation in Texas which reported separately.

Therefore, there was an error in these figures to the extent of the traffic crossing Red River. When the figures were compiled both Mr. Simson and Mr. Hamilton tried to get the amount of this traffic and neither was able to obtain it then and the Exhibit was prepared with a note to the effect of this error therein. (R. pp. 599-600.) Subsequently further data was discovered which developed the maximum amount of that error and that maximum is deducted.

By taking the accounts made of the Texas Frisco lines to the Interstate Commerce Commission and to the Railroad Commission of Texas, Mr. Simson was able by a process of exclusion to account for all of the traffic, freight and passenger, which moved in Texas intrastate and assumed that all which was not accounted for crossed Red River, which would be an erroneous assumption, but that assumption is against the State here and is the maximum extent of the error in these figures, and, therefore, will be deducted from them. On this Exhibit "C" it reduces the constructive expenses for the year 1913 from $5,751,142.86 to $5,368,896.45. That calculation was not carried back into the other years, but it was merely made to show that the error in this process was not material and since the maximum amount which could possibly have crossed Red River is accounted for the only error now in those figures is against the State.

It may be taken as established that the actual excess of expenses constructed on the unit costs as found by the company for line and terminal service in Arkansas, applied to the whole line is $5,368,896.45 above the actual operating expenses for the year 1913. (R. pp. 788-790.)

Knowing that this error existed in regard to the Frisco line north of Red River which is the road before the Court in order to test out the proposition more broadly Mr. Simson

made two more exhibits, one using Mr. Hamilton's unit cost and the other using his own as shown in Exhibit "A."

These are Exhibits "D" and "E." They take the entire line of the Frisco Road including the North Texas line, for the test period of two months ended December 31st, 1913, and for seven years preceding.

Exhibit "E," page 2228, built upon the same plan shows an excess of expenses for the test months as constructed on the cost units of $822,559.04, and for the year 1913 of $5,747,-409.87.

In Exhibits "D" and "E" there was an error growing out of the inclusion of two small lines in Texas that should not have been included for the year 1909. The error was comparatively small and the correct amount was written in red ink. It reduced excess cost from $5,747,025.66 to $5,343,102.41. (R. p. 775-786.)

Applying the reduction to eliminate the error in this Exhibit as in the previous one it would leave an excess cost of $4,982,917.05. (R. p. 789.)

Mr. Hamilton in his rebuttal testimony spends many pages in attempting to answer the unanswerable result brought about by these Exhibits to his unit costs of line and terminal expense. (R. pp. 826-834.)

His argument is that the density of traffic in Arkansas and the short haul in Arkansas makes the line and terminal expense greater in Arkansas than it is upon the entire line.

The proposition is put to him on cross-examination that one or the other of these alternatives is necessarily true; that either the Arkansas terminal expenses are higher than those of the line or else there has not been proper apportionment of line and terminal under the Formula. (R. p. 863.)

This is undoubtedly correct, and Mr. Hamilton's contention is that the terminal expense in Arkansas is higher than the terminal expense of the entire system.

Mr. Hamilton had testified on this proposition earlier in the case. He was questioned as to equating back from 1913 to 1907 and asked if he equated back so as to cover what he considered as terminal cost, and answered that he had by adding an allowance of mileage to cover terminal cost.

"The one way interstate revenue can be prorated between states is on a mileage basis. Surely, there is no ground for the assumption that a road earns any more on any one given mile of road haul than on another given mile of road haul.

Q. Does not the density of traffic affect that?

A. No, sir. That would affect operating expenses.

Q. Doesn't it affect earnings?

A. In a way, yes.

Q. In a very material way, wouldn't it?

A. No, sir. It would if we followed Mr. Douglass' method —not the one we have used in our 1913 figures." (R. p. 159.)

Mr. Hamilton explained the purpose of equating the interstate revenue so that there would be compensation for the terminal expense outside of the state, after referring to the difficulties in this point in other Rate Cases, he said:

"We tried to overcome that here as best we could, by allowing to the state that had this big terminal, so far as we could determine it, a proper revenue allowance to compensate for that terminal cost. So we determined the average cost per ton for the terminal expense in Arkansas—and by that I mean the terminal expense as it is defined in this Formula and these Exhibits—not the ordinary acceptance of the term. We found that was approximately 38 cents per ton. We also found the approximates of cost of hauling a ton of freight over the rails in Arkansas. We found that was about 4.50 mills, in round figures, or about that." (R. pp. 259-260.)

Then he explains the method of adding an equivalent mileage to compensate for the terminal cost outside of the State. Then he stated: "I have made a little research since the last hearing. We thought there was some inequality in this outside cost, and it was assuming too much when compared relatively with the big terminals. I was pleased to find that at St. Louis our two big stations, the Broadway station and our own station at Seventh and Cerre Streets, our cost per ton for handling freight has run between 36 cents and 39 cents for years; and that is pretty close to this Arkansas average. That strengthened my opinion that this is a fair equation, this comparison of terminal cost in the State as a whole with such terminal cost outside. I took that up just to satisfy myself how relatively correct that was." (R. pp. 260-261.)

In his argument in rebuttal testimony that the terminal cost is higher in Arkansas than on the line Mr. Hamilton stressed the fact that there was a less density of traffic in Arkansas than on the line as a whole, partciularly in some portions of the line. The actual figures on density of traffic were put in evidence.

In 1913 the density of passenger traffic in Arkansas was about 30 per cent less than the line, and on the freight side 19 or 20 per cent less. (R. p. 884.)

In 1907 the freight traffic was approximately 10 per cent less in density than on the entire line, and passenger traffic approximately 19 per cent less in density than the passenger traffic on the entire line. (R. p. 896.)

Mr. Simson states that when the same number of freight trains are run that the expenses of the road are substantially, if not exactly, the same whether they are loaded 75 per cent or 100 per cent of their capacity; that their revenues would be affected but their expenses not materially so, and on the passenger side of the question that, as Mr. Frates had explained, passenger trains carry a surplus power at all times over their capacity, and that an addition of 10 or 20 per cent in density of passenger traffic would have no appreciable effect on the expenses. (R. p. 897.)

It was also argued by Mr. Hamilton that these cost units were not used to divide expenses and that they did not affect the intrastate revenue or expense. They only affect so far as the railroad exhibits in this case go the interstate revenue apportioned to Arkansas.

This is true, but that does not go to the proposition involved here. This road has said that the cost in Arkansas both for line and terminal is closely reflective of the cost throughout its entire line; that the terminal cost for state and interstate freight and passengers is the same per ton and per passenger and the cost for hauling freight and passengers for state and interstate traffic is the same per mile hauled. That is the basic assumption of the Formula as explained by Mr. Nay. (R. p. 385.)

Mr. Hamilton, too, justified the statements of these exhibits in his own testimony to the effect that cost for terminals in Arkansas developed in this Formula of 38 cents was closely reflective of the cost of the entire line, giving the Court the benefit of his research in the company's large terminal in St. Louis. There he found the terminal cost running for years between 36 cents and 39 cents per ton. He then supposed the terminal cost in Arkansas was 38 cents and called attention to how closely the St. Louis terminal cost was with the Arkansas terminal cost. Later it developed through Mr. Simson's statistics that a mistake was made and that the terminal cost in Arkansas as properly worked out from company's Exhibits was 31 cents instead of 38 cents, or more properly speaking, it was an error in the method adopted in taking tons instead of tons per terminal. Upon the theory that the terminal cost in Arkansas was closely reflective of the cost throughout the line an equivalent mileage representing that cost in other states is built up and added to the actual mileage of all interstate traffic on the theory that this terminal cost in Arkansas represented the terminal cost elsewhere.

The Formula purports to divide all expenses between line and terminal and to do it accurately and minutely.

The evidence here shows that the density in traffic in Arkansas is comparable with the entire line to a degree where the difference would not affect the expenses. It is greater in Arkansas than in Oklahoma as is shown in the testimony.

The State accepted as true Mr. Hamilton's statement that the terminal cost in Arkansas was no higher than the terminal cost on the system. It accepted as true the statement in Exhibit 4 that the terminal cost in Arkansas closely reflected the terminal cost throughout the entire system. It accepted as true the statement in Exhibit 4 that the line cost in Arkansas was closely reflective of the line cost throughout the system and upon the road's own statement built up these Exhibits to ascertain if the road had correctly set up its line and terminal cost in Arkansas.

The result shows that after all corrections are made for the year 1913 on the lines north of the Red River there was an excess of cost of $5,368,896.40, and that the same year taking the entire Frisco Road including the Texas line there was an excess of cost of $4,982,917.05. In other words, if Exhibit 4 is true (and it lies not in the mouth of the Railroad Company to say it is not true), then the Formula has produced a terminal expense above the real facts and this excessive terminal expense has produced approximately $5,000,000.00 more expense each year than was actually incurred by the Company.

Both Mr. Nay and Mr. Hamilton say that if these costs were the same in Arkansas as they are throughout the system that the results built up by using them will necessarily be the actual operating expenses of the Company.

The Company has asserted the fact and proved it by Mr. Hamilton that the terminal cost in Arkansas is the same as over the system. It has asserted and proved it by Mr. Hamilton and Mr. Nay that the haulage cost is the same on any mile of the system as it is in Arkansas, and, therefore, but one conclusion can be reached and that is that it is mathematically demonstrated that the Formula has erroneously built up terminal costs that do not exist and they are built up to such an extent that they show approximately a $5,000,000.00 excess for each year above the actual operating expenses.

To put it in another way, if the Formula had brought about true results the use of these cost units for line and terminal expenses necessarily bring the actual operating expense of the road. Their use, however, brings about an excess of $5,000,000.00 a year.

It is not strange that such a formula would likewise produce 15.43 per cent excess cost of intrastate passenger over

interstate passenger and 319.58 per cent extra cost of intrastate freight over interstate freight. (Exhibit 17, p. 2022).

The result of the Formula is to build up terminal costs. Unquestionably excessive terminal costs have been built up and owing to the intrastate being chargeable with two terminals as against one for the interstate, and in many instances none (transtate), the result is seen both in the grotesque extra cost figures of the intrastate and in the absurdly excessive expenses constructed by the use of these units over the actual expenses of $5,000,000.00 a year.

The acid test has been applied to the statements in Exhibit 4 and Mr. Hamilton's testimony supporting them that the Arkansas terminal and line costs worked out under the Formula closely reflected the costs of the entire line. Only on the truth of that statement could the interstate revenue have been fairly prorated by having this mileage equivalent built upon these cost units. Its truth being assumed then there units costs are used to find the actual operating expenses of the road for the given periods. It is a mathematical certainty that they will produce it unless the line or terminal units are wrong. The result shows them wrong to such an extent that the Formula is necessarily destroyed.

## EQUATING BACK TO 1907.

The primary question here is whether the preliminary injunction should have been granted in 1908.

The issue is whether the property devoted to intrastate traffic was earning a compensatory return from the intrastate rates when the preliminary injunction was granted.

The value of the property, and necessarily the earnings and expenses, must "be determined as of the time when the inquiry is made regarding the rates." (Willcox vs. Consolidated Gas Company, 212 U. S., 52.)

Whether the Railroad Company, the stockholder plaintiff and the injunction bond shall be held responsible for overcharges above the enjoined rates depends upon this fact.

It is true that should the Court find that the injunction was improperly issued at the time, but that later a changed condition of affairs showed confiscation where there had theretofore been compensation the plaintiff would be entitled to an injunction against the rates from such time as the change occurred, but that principle is academic here because the actual return for the year 1913 as shown both by the Railroad Company's Exhibit No. 61 and the State's Exhibits "AA" and "BB" is larger than for 1907.

This is true even if the diminution tables are applied and

the revenue reduced to a level of the State rates applied to the traffic of 1913. (R. p. 753.)

The return on the corrected figures averaging this period and deducting the supposed diminution in revenue from the application of the State rates during the year 1913 is 6.9 per cent or 7.23 per cent according to whether the old or new Formula is used in the assignment of earnings and expenses to the State.

Recognizing that it must show a confiscatory return in 1907 to entitle it to relief the Railroad Company's case is predicated on successfully carrying back to 1907 the extra cost percentages developed in applying the Formula to the expenses gathered during the two months of November and December, 1913.

The facts in regard to this equating process are set forth fully in Exhibit 23 and explained by Mr. Hamilton in his testimony which has been heretofore abstracted, and your attention is now specifically directed to this process.

The normality exhibits, 34 to 41, are supposed to furnish the justification for it by establishing substantially similar conditions in 1907 as existed in November and December, 1913. The State's Exhibits bringing the 1907 period to a normal average demonstrated that said period was not typical and that demonstration alone is sufficient to destroy the value of the equation, but the State's defense is not ended with that answer to the equating process, complete as it may be.

(a). In the first place the engine ton mile was used in the 1913 test months to divide common expenses of Maintenance of Way and Structures between freight and passenger.

The fallacy of this factor for this purpose is discussed at length in the following chapter. The use of this grossly unfair factor to the passenger traffic and through it on account of the much higher passenger percentage of intrastate than freight intrastate is itself sufficient to destroy the value of the equation.

This is a very similar situation to that developed in the Iron Mountain case, 230 U. S., 553.

Judge Trieber refused to use the revenue basis to divide property and expenses as a whole, but worked out a plan of his own taking as a basis the State's plan of separating expenses and changing the bases therein where in his judgment the factors used were wrong for the purposes used.

For several large items he substituted the revenue theory for the factor used in the State's plan. The result brought out a confiscatory return through the application of this plan used by the Court.

This Court, while rather complimenting the plan as a whole, yet on account of the revenue theory having been applied to some of the large items, refused to accept the result thus worked out on account of the inherent error of using the revenue theory.

If this Formula has any merit as a whole that merit is destroyed, like Judge Trieber's Formula was destroyed, by the use of a grossly erroneous basis for one of the largest items to be apportioned.

Mr. Hamilton attempts to defend the engine ton mile which he admits is brought back through the equating process to the four months ended December 31st, 1907, by showing that it differed but litle from the revenue train mile used by the Railroad to divide these expenses between freight and passenger for comparative purposes in watching its own operations. He shows that the engine ton mile assigned to freight 53.7 per cent of these expenses and the revenue train mile assigned 52.7 to freight for the fiscal year 1913. (R. pp. 854-855.)

It will be remembered that the Douglass Formula was the Formula for reporting to State Commissions the earnings and expenses of the given State, and did not deal with the separation of freight and passenger, but the Railroad had a Formula for that purpose which it had used for its own operating comparisons, which did use the revenue train mile to separate these expenses. (Exhibit 23, R. p. 2050.)

Mr. Hamilton in seeming justification of the engine ton mile referred to the fact that Mr. Simson approved the Douglass Formula and impliedly indicates Mr. Simson thereby approved the revenue train mile division between freight and passenger. This is, unintentionally, misleading. Mr. Simson only used the Douglass Formula for assigning revenue and expenses to the States. None of his exhibits went into the division between freight and passenger, state or interstate. He made this clear both in his direct and in his cross-examination, and all remarks of his commendatory or otherwise of the Douglass Formula related solely to the Formula for assigning expenses and revenues to the State, and there is no commendatory reference by him to this other Formula used by the railroads for dividing between freight and passenger.

The revenue train mile division between freight and passenger is thoroughly discredited. Mr. Hamilton was reminded that in the Iron Mountain case Mr. Gray and Mr. Ward and probably other eminent railroad operating officials testified that the revenue train mile was the most unreliable factor which could be used. He said that he

thoroughly agreed with them that such was the case. (R. p. 878.)

The train mile basis was tentatively considered by the Committee framing this Formula—this Sanhedrim of the litigating railroads—and rejected by it. (Nay, pp. 410-411.)

It, with all other bases suggested by the railroads and by various state commissions, was thoroughly considered by the Interstate Commerce Commission in the Western Fares Advance Case, and discarded. (37 I. C. C., 1.)

Therefore, no support can be gained for the engine ton mile by assimilating it to the revenue train mile, and an equation built up by bringing together two formulas each using a bad basis for this purpose cannot bring about any result which will be convincing.

(b) Exhibit "G," record page 2234, was prepared and introduced by Mr. Simson, and thus explained: Under the equating method which contrasts the expenses and earnings of the year ended June 30th, 1913, under the old Formula to the distribution of the same earnings and expenses under the new Formula from which a percentage relation is obtained and which percentage relation is applied to the distribution of earnings and expenses under the old Formula basis for the four months ended December 31st, 1907, it became necessary to make an examination of the distribution or apportionment of expenses to Arkansas under the old Formula. The result of not apportioning to Arkansas under the old Formula any expenses for the year ended June 30th, 1913, which should have been apportioned would increase the percentage relationship of the new Formula from the old and thereby unduly increase that percentage relationship of the amounts assigned to Arkansas for the four months of 1907. (R. pp. 610-611.)

In pursuance of his investigation he found the method of handling the expense at the Memphis terminal was different in 1913 from what it was in 1907.

He goes into great detail in explaining the two methods and the result of his investigation, but as Mr. Hamilton admits that a mistake was made as pointed out in Exhibit "G" (R. pp. 825 and 839), it is not necessary to follow out this detail. The exhibit shows that through an error in the Transportation expenses assigned to Arkansas in the Company's Exhibit "27A" that there was an excess of $23,080.62 over the actual expenses.

Mr. Hamilton seeks to minimize the effect of this error by showing that after making the correction the intrastate traffic would still be in the red. (R. p. 840.)

When it is remembered that all calculations by the Rail-

road Company to show a return (or non-return) on intrastate business are based on the alleged extra cost percentage of 15.43 of intrastate passenger and 319.58 per cent to intrastate freight, it is readily seen that such results spell nothing and that it is practically impossible to make out any return on traffic thus burdened.

The original affidavits upon which this case was based made no such extravagant claims. Even with the support of the eminent railroad officials testifying to the extra cost of the intrastate over the interstate it was therein only claimed to be 25 per cent on passenger and 100 per cent on freight. (R. p. 58.)

This error of the $23,000.00, however, does not stop with a mere adjustment of it on the expense side. It is part of the Transportation expenses (R. p. 612); and under the Frisco modification of the Formula (Formula pp. 39a and 39a), the Transportation expenses, as assigned, are used as bases to apportion the common property between line and terminal, freight and passenger, mail and express, and state and interstate.

An error, however small, in the assignment of these expenses quickly runs into big figures in their application to the property values.

To illustrate: Assume sixteen millions of common property to be divisible between freight and passenger on the basis of the assignment of Transportation expenses. Assume such expenses for a given period to be $100,000.00. An error of $1,000.00 in apportionment between freight and passenger would make a difference of one per cent in the basis. Suppose the basis of division should be 50 per cent to each, but that the error results in assigning to passenger one per cent more than that, and that therefore $160,000.00 too much property is assigned to passenger service on account of $1,000.00 too much expense being erroneously carried to the passenger side. It would require $9,600.00 of the net income from passenger sources to make a return of six per cent on the $160,000.00 of property erroneously assigned to passenger service, and by reason of the application of the "equating" theory, this same error would have a substantially identical effect on all other periods which were "equated" on the one directly distributed. In addition, the error of $1,000.00 in assigning the expenses between classes of service would improperly reduce the net income from passenger service, so that an error of this kind cuts both ways in its effect on the results, i. e., it reduces the net income and at the same time increases the assigned property value on which the return is to be computed.

Mr. Simson discovered that the equating method had been applied to the to the total of Maintenance of Way and Structures, of Maintenance of Equipment, of Transportation, of Traffic and of General Expenses, and that had the equating been worked out by an application of the percentages to each of these individual accounts instead of the total the equated figures for the four months ended December 31st, 1907, would have been $7,397.80 less than the actual amount assigned to Arkansas. (R. pp. 612-613.)

He had not worked this out between freight and passenger. He was merely considering the amount assigned to Arkansas in the Company's Exhibits before any division was made to freight and passenger. (R. p. 613.)

Mr. Hamilton admits the correctness of this computation, but says that if you go further and make that calculation by the individual Interstate Commerce Commission classification which is suggested by Mr. Simson and adjust the Company's non-revenue burden from the freight to the passenger side, and then applied this percentage to each individual Interstate Commerce Commission account separately it would have resulted in assigning $8,400.38 more to Arkansas than was actually done, but he thought he had made a correct assignment in Exhibit "27 A." (R. p. 824.)

Mr. Hamilton was evidently in error as to the method of this computation. The Company material adjustment under the Formula did not result in any increase of the original assignment of expense to Arkansas, but simply in the re-arrangement of them between freight and passenger. Mr. Simson was dealing solely with the amount of expense assigned to Arkansas, and in his rebuttal testimony (R. pp. 888-889) he makes this clear. The Formula (page 37) and Exhibit 10 (page 1999) show this to be true.

The Court in his opinion, record page 914, refers to this matter and accepts Mr. Hamilton's statement of it, and stated: "No rebuttal was offered by Mr. Simson or any other witness as to that statement."

The Court overlooked the testimony of Mr. Simson which is referred to. In fact, it is a self-evident proposition that the assignment to Arkansas as a whole can not be affected by a redistribution of part of those costs between freight and passenger. The proposition was dealing entirely with the amount of expenses assigned to Arkansas and not their distribution.

(d) Mr. Simson discovered this further fact in locating the various expenses to the State. The old Formula prescribed many items to be distributed to states on an "actual" basis. The new Formula used "direct," or "located direct," the

terms being synonymous. In each instance the Formula called for an actual location instead of an apportionment of certain expenses which were susceptible of actual location to the State.

But in applying these two Formulas there was found quite a difference in numerous items which should have been identical, one of these being an item of station employees, account 63. Each Formula called for that to be located to the State direct. There is no reason why substantially every dollar of that account should not have been located, as each station is located either within the State, or without the State. The old Formula apportions $207,957.30 to Arkansas; the new one apportions $226,019.35. Other instances are given. (R. pp. 613-614.)

Mr. Hamilton admits the correctness of these figures, but says that he found a large part of these items were included in Mr. Simson's Exhibit "G," the inference being that Exhibit "G" represented the total errors in this matter. (R. p. 825.) But he was mistaken about that as pointed out by Mr. Simson who said that some of these errors were included in his Exhibit "G" covering the Memphis terminal proposition but others were not.

There was a difference between the item of injury to persons in round numbers $25,000.00, and difference in the item of damage to property of $1500.00, and some other minor differences which were not included in Exhibit "G." (R. p. 887-888.)

In other words, each Formula calls for an actual location to Arkansas of a given item of expense. The figures differ in sums of $25,000.00 and less as to what are the actual expenses assigned to Arkansas. This was not only error in fact but reflected error in equation.

Mr. Nay was asked if, under the Formula, should any property or expense be found to be entirely interstate or intrastate, should there not a direct assignment of such property or such expense be made to the class to which it belonged from its nature, and he said that it should be done.

Referring to the Memphis Bridge owned by the Frsico Road he said that was exclusively interstate property. From its nature there could be no intrastate business over it; that it should be assigned direct to interstate. (R. pp. 432-433.) Yet it is found on examination of the accounts that part of the expense growing out of the Memphis Bridge is assigned to Arkansas intrastate in spite of the fact that all of the revenue from the Bridge is being classed as interstate. (R. p. 889.) Another error in fact which finds reflection in the equation.

(e) The results of the normality Exhibits show such variations in many instances between the two months of 1913 and the four months of 1907 that it would be impossible to make any fair comparison between the two unless they were brought together on some equitable basis such as was attempted by the State in its averaging exhibits.

For instance, take Exhibit 41, which gives the proportion of the entire line operating expense and traffic compared. It is seen therefrom that for the four months of 1907, 11.80 per cent of the operating expense was assigned to Arkansas, while for the two months only 10.44 per cent was assigned. And the movement of freight was different, in the four months of 1907 the Arkansas proportion was 11.28 and in November and December, 1913, 9.48 per cent, while the relation of passenger for the same period was reversed. The smaller proportion being in 1907, 10.25 per cent as against 11.14 per cent in the two test months of 1913.

Exhibit 40 shows the ratio of intrastate and interstate traffic to the total in Arkansas. The intrastate freight traffic for the four months in 1907 was 3.65 per cent, while for November and December, 1913, it was 3.89 per cent. Again, the passenger proportion was relatively different, it being for the four months 43.77 per cent, while for the two months of 1913, 40.55 per cent. The density of freight traffic in the four months of 1907 was materially heavier than in the two months of 1913, being 1417 as against 1280, while the density of the passenger traffic was much heavier in November and December, 1913, being 271 as against 197 for 1907. (Exhibit 38, page 2141.)

In view of these differences in operating conditions, differences in traffic conditions, differences in earnings and in expenses it is respectfully submitted the two months period of 1913 cannot represent the four months period of 1907 so that the results of one can be taken for the results of the other.

For each of the reasons discussed in (a), (b), (c), (d) and (e) it is submitted that the equation used here is valueless.

## ENGINE TON MILE BASIS FOR DIVIDING MAINTENANCE OF WAY BETWEEN FREIGHT AND PASSENGER.

Accounts 2 to 10 in Maintenance of Way and Structures, in the apportionment of line expenses between freight and passenger, are divided on the basis of the engine ton mile formula. (P. 17.)

Mr. Nay says: "These accounts are the principal Maintenance of Way and Structure accounts; it is where most of the money goes." (R. p. 308.)

Exhibit 40 shows that in 1907 the intrastate ratio was only 3.65 per cent of the total freight, the interstate being 96.35 per cent, while the intrastate passenger was 43.77 per cent and the interstate passenger 56.23 per cent.

As this basis for division goes to the accounts where most of the money of the railroad goes, it is apparent that where there is such a marked difference between the relative freight and passenger intrastate to that of the interstate, that an apportionment of too much to passenger will find reflection in too large an assignment of expenses to the intrastate traffic.

Hence if this basis is incorrect, being one of the material factors in the Formula, the margin of error will necessarily be great, if there is an error, owing to the wide differences between the relative freight and passenger intrastate business to the whole, then the whole Formula must fall.

This is the main line of the railroad between stations which is divided on this basis between the two classes of service. Heretofore the railroads, in Rate Cases, have divided it on revenue train mileage on the theory that the extra speed of the passenger trains compensated in the use of the track for the extra weight of the freight trains. Then it had been contended that only a minor part of this expense varying from 10 per cent to 25 per cent of the actual upkeep, is directly traceable to the wear and tear caused by the trains running over it; the remaining 75 per cent or 90 per cent being due to the action of the elements. (R. 109.)

Mr. Hamilton says, "There was only, so far as we could see, one common ground on which the freight and passenger service could meet, and that was the engine ton miles, and for this reason: the weight of your engine denotes not only its type, but the size and character of the train that you expect it to haul. It is conditioned to the service required of it." (R. p. 109.)

Continuing, he says that the train behind the passenger engine consists of fewer cars than the train behind the freight engine, but the passenger engine is required to run at a greater speed and the freight engine is rquired to pull a heavier train at a slower speed.

It seemed to the Committee that the service of the engine being conditioned to the speed and weight combined and expectd to be met with in the passenger and freight train respectively, really was the best common unit of measurement of the use that was gotten out of the track as between

freight and passenger service, because the track is used to pull trains of varying weights and varying speeds. The locomotive in the freight and passenger service being accommodated as to the speed and tonnage that each must handle. (R. p. 110.)

The engins ton mile runs 49 per cent of these expenses to passenger and 51 per cent to freight in 1907. As shown in Exhibit 9 and explained by Mr. Hamilton (R. p. 197) the revenue train mileage runs about 51 per cent passenger and 49 per cent freight. Mr. Hamilton does not advocate the revenue train mileage for this division, but merely gives these figures to show that the revenue train mileage is practically the same as the engine ton miles. (197.)

He was asked if engine ton mile did not ignore entirely the weight behind the engine, and stated that it did, except that the engine is conditioned by its size to pull that weight at the speed required of it.

He was asked if this factor did not ignore entirely the speed of the train and he said it did, except as the speed is reflected by the size of the engine as compared with the weight of the train which it has to pull. He says that the traffic is not evenly distributed on the Frsico; that it is unbalanced in spots. (R. p. 198.)

He says that the size of the engine indicates the speed and the weight of the train the engine is to pull, and that is not a mere assumption. He admits there is a great difference between what an engine can pull on the different parts of the line and that an engine indicative of a certain load on one division would be indicitive of quite a different load on another division. (R. p. 200.)

Again these questions were put to Mr. Hamilton, and he stated that he assumed the size of the engine, indicated by its weight, indicated the weight and speed of the train it was expectd to pull, and that was the use that the train got out of the track regardless of how the necessity for its upkeep arose—whether elemental or straight wear and tear.

He says that it would not disregard the tonnage behind the engine or the speed of the engine, because the engine indicates the service of the train and is one of the prime factors.

"Q. You assume that the engine hauls what it could haul behind it?

A. Yes, sir.

Q. That is assuming an ideal operating condition.

A. That assumes conditions we attempt to get; not putting too fast an engine on too slow a train.

But by putting on that engine a load its size would indicate it should haul at a given speed."

MR. MOORE: This assumed condition exists on your road?

A. Yes, sir.

MR. HILL: Does anybody else get that ideal condition? Is not that conjecture on your part?

A. It is not conjecture. We think we are very close to that assumed condition on the Frisco, as will develop before we finish here." (210 and 211.)

Mr. Nay testified on the same subject. He says the Committee had a great deal of discussion as to the best basis to use for this division of expenses. A study was made of the engines used in freight and passenger service, and it was found that passenger engines which hauled trains at a high rate of speed were practically of the same weight as the larger freight engines which move slower but pulled heavier trains. In some cases the passenger engines of those high speed trains are heavier. They found the weight of the engine really represented the service performed as to weight and speed.

The argument made to support the old Formula was that the speed of the passenger train offsets the greater weight of the freight train. The Committee concluded that the weight of the engine actually would reflect the speed in the case of the passenger engine and in the case of the freight engine the weight which was pulled and also the speed. That is, for greater speed and heavier weight you must have a heavier engine. For slower speed and lighter train, you may have a lighter engine. Then again when it comes to a portion of your expenses for ties, rails, track material and ballast, to a certain extent the heavier the engine the greater would be the damage, so that the weight is an important factor.

Frequently bridges are constructed and heavier rail put in and additional ballast on account of the heavier engine put on the track, not because of heavier cars. (R. p. 309.)

In the Iron Mountain Rate Case, he had testified that the same basis should be used for dividing between freight and passenger that was used for dividing between local and through trains, as far as Maintenance of Way expenses was concerned, but he had changed his mind on that subject now. (R. p. 391.)

He states that the Maintenance of Way expense between the local and through train should be divided on the gross ton mile, and between the passenger and freight on the engine ton mile, because there was not much difference be-

tween the speed of the freight trains while there was a difference between the speed of freight trains and passenger trains, and the engine ton mile took that difference in speed into consideration by reflection. (R. p. 392.)

He says this is an approximation, but he thinks the closest that they have been able to get to it at the present time. When he testified in former rate cases he thought the revenue basis was the best for dividing this expense (R. p. 393) and that he is not more honest now than he was then in presenting this, the engine ton mile, as the best approximation for it. (R. pp. 393-394.)

He states that the engine does represent what is behind it in that the heavier engine pulls a heavier train. He doesn't mean that the engines pull to their maximum capacity, for few roads have enough business to load them up to their maximum capacity, but the heavier engine will be put to the heavier trains to haul, and where the greater speed is required. He says it is not a fact that there are plenty of big engines hauling little trains. (R. pp. 407-408.)

He states that the engine is used as a representative of the load behind it and he was asked why the roads had not made up statistics for what was behind it and he said that they believed engine ton miles would sufficiently represent the use of the property rather than to put the whole thing in, because of the element of speed. (R. p. 409.)

He says that the engine does represent speed also; that they made a test on the Rock Island and developed what is called speed ton miles. It cost less to compute engine ton mile than speed ton mile as these were substantially the same they adopted engine ton mile.

In the preliminary Formula which was prepared by the Committee the method of dividing this account was left open, and four ways suggested: Speed ton mile, engine mile and train mile and cost accounting, and gross ton mile were mentioned. (410-411.)

This is the substance of all the testimony to sustain the engine ton mile.

The State introduced Mr. Mayer, who discussed this subject at great length, and was cross examined upon it with great severity. The opinion evidence of Mr. Nay, Mr. Hamilton and Mr. Mayer is not regarded as of any special moment; but it has been set out herein so that the Court can see its value and also see that the same class of testimony was before the Interstate Commerce Commission as is here when it rejected the engine ton mile for this basis.

Your attention, however, is specifically called to Exhibit "CC" filed by Mr. Mayer. (R. p. 2263.)

Mr. Mayer's attention was called to the testimony of Mr.

Hamilton and Mr. Nay which has just been abstracted and he was asked if he had made any investigation of the correctness of their assumptions, and if so what they were and to develop the facts fully. (R. pp. 544-546.)

He then explained how he had from the Company's records and from their time tables, built up this Exhibit "CC" which covers the two main divisions in the State of Arkansas of the Frisco road, the Ozark and Central Division, for the four months of 1907 and the two months of 1913. (R. p. 549.)

On the first Division during the month of September, 1907, the east bound trains carried 97 per cent of their engine rating: for the same month the west bound train carried 62 per cent. For October the east bound carried 79 per cent and the west bound 64 per cent. In November the east bound carried 75 per cent and the west bound 42 per cent, and in December the east bound carried 67 per cent and the west bound 44 per cent; in the month of November, 1913, 82 per cent of the rating was hauled east bound and 88 per cent west bound. In December, 1913, the east bound was 84 per cent of the rating and 80 per cent west bound. (R. p. 551.)

This means that the trains operated in December, 1913, were loaded more heavily than they were in November, 1907, by 33 per cent; there was either more cars or more in the cars. (R. p. 552.)

In November and December, 1913, there was also a showing of the difference between the local and through freight train. This data was not available for 1907. (R. p. 552.)

In the month of November, 1913, on the Ozark Division, the east bound through carried 87 per cent of the rating, the local train 61 per cent. In the opposite direction, the same time the through train carried 93 per cent and the local train 55 per cent. Other statistics are given, but these are probably sufficient to prove the point of the Exhibit which is that the engine does not and cannot represent the load behind it. (R. p. 553.)

Mr. Mayer states that the passenger train mileage is fairly constant and shows from Exhibit 38 that such is the case on this road. (R. p. 553.)

He shows from these facts that the result of the use of this factor is to unduly burden the passenger traffic.

He gives similar statistics on the Central Division, and as shown in the detail is about the same as on the Ozark Division, a great variation being shown in east bound and west bound and in local and through, and a great difference in each month. (R. pp. 554-556.)

The passenger train records are made up differently; in-

stead of figuring the potentiality of the passenger engines they merely show the train miles handled. Two trains were taken on the Central Division to illustrate this point.

Train No. 4 handled six cars on its daily trip from Fort Smith to Monett, 134 miles, and train No. 6 carried seven cars and the engines on these trains were identical; the mileage was identical; one made 804 car miles and the other made 938 car miles, yet they make the same number of engine ton miles, although the train behind them was different. In other words, there was 16 per cent more work done by one than the other and 16 per cent more use of the right of way by one than by the other, yet the same engine ton mileage results. Many other examples just like this are given. (R. pp. 559-560.)

Mr. Mayer takes up each of the reasons given by Mr. Hamilton and Mr. Nay and combats them with the statistics found in this Exhibit.

In rebuttal the railroad called Mr. Frates. Mr. Frates is the General Superintendent of the First Division of the Frisco Railroad, consisting of about one-half of the system in which Arkansas is included. (R. pp. 805-806.)

Mr. Frates shows the established rating shown on the time tables is obtained by pulling tests under normal conditions and represents the maximum tonnage that can be pulled over the ruling grade under normal conditions and at a speed of ten miles per hour. (R. p. 806.)

On each division the road has expedite trains, trains which handle high class freight, stock, meat and perishable freights of all kinds, and the road to get this expedite freight moved rapidly, sacrificed tonnage to speed. (R. p. 807.)

He explains many operating conditions in regard to the loading of trains, the weight and track conditions effecting speed and load, the difference in operation of local and through freight trains, and the practice to assign an engine to passenger service with certain reserved power. (R. pp. 810-813.)

In fact he gives from the operating standpoint, the reasons why the tonnage is different at different times and different directions and on different trains. His testimony accounts for the concrete facts shown in Mr. Mayer's Exhibit "CC" and is abundant proof that the engine does not represent the load behind it.

On cross-examination these illustrations of operating conditions were brought out. If the Assistant Superintendent at Monett had twenty cars of expedite freight to go to Fort Smith and an engine available for that service, and in the judgment of the Superintendent these cars ought to go at

the rate of twenty miles an hour, and that was as many as that engine could carry at that speed, such a train would be made up and sent with such load and at such speed. If in the next day or two the Superintendent found forty cars of dead freight that did not need expediting and that same engine was available and according to its ratings could carry forty cars ten miles an hour, that train of forty cars would be made up and sent to Fort Smith with that engine at a speed of ten miles an hour. In each instance the engine ton mileage would be identical.

The same engine on the one day carrying forty cars and on the other day carrying twenty. This illustrates the railroad's practice in handling expedite or dead freight. (R. pp. 813-814.)

On the passenger service an engine is provided with power over and above what is needed to handle that train, so that they could pick up extra cars, make up for delays and untoward weather conditions. (R. pp. 817-818.)

The difference in grades in different parts of the line materially affect the loading capacity of the train behind the engine. For instance, from Jonesboro to Memphis, engines of 11 tonnage class can carry 1850 tons and from Memphis to Jonesboro only 1350 tons. (R. p. 818).

Of course the engine ton mileage would be the same, but there would be 500 tons difference in the load behind the engine, and the engine in each instance working up to its potentiality.

His roads send out local trains, as do all roads, on fixed schedules. It also sends out high class merchandise trains on schedule every day whether they have a full tonnage or not. (R. pp. 819-820.)

His road handles a great deal of fruit and this is moved fast and the tonnage is sacrificed for speed. These trains run 25 or 30 miles an hour, an average speed of 25 miles an hour. (R. pp. 821-822.)

Mr. Hamilton and Mr. Nay both lay stress on the value of the engine ton mile as representing speed as well as weight and Mr. Hamilton put into the record a statement that the speed of the freight train here shows an average of 19½ miles an hour and the passenger trains 32. (R. p. 259.)

Here is a large class of freight trains running as fast as passenger trains, their average is considerably above the general average of freight trains. The speed factor vanishes on an examination of the real operating conditions.

Mr. Symons was called in his rebuttal to explain the potentiality and rating and tractive power of locomotives. (R. p. 797.)

The Interstate Commerce Commission has given a great deal of consideration to this subject. It is a matter which it has investigated for some years. It has been investigating it for the purpose of establishing proper accounting by the railroads and on June 15th, 1915, effective July 1st, 1915, promulgated a rule governing the preparation of operating expenses between freight and passenger service; and in an introductory note to the rules then promulgated it was stated: "The representatives of State Commissions advocated the use of 'gross ton miles' as a basis while the representatives of railroads favored 'engine ton miles.' The discussion seemed to be somewhat influenced by the possible effect of these respective bases on the statistical evidence which might be introduced in passenger fare cases. It may fairly be said that the facts and arguments presented do not warrant the final approval by the Commission of either the gross ton mile or the locomotive ton mile at this time." (37 I. C. C., p. 13.)

On the application of the carriers for increase in passenger fares in western territory, this question became the determining element as to whether or not increase should be granted and if so to what extent.

The finding of the Commission reported under the style of "Western Passenger Fares," 37 I. C. C., 1, goes in great detail over the contentions in regard to the separation of operating expenses between freight and passenger. The discussion of this subject begins at page 12. It will be seen by an examination thereof that exactly the same contentions were made in the support of engine ton mile, which were made herein for it by Mr. Nay and Mr. Hamilton. Basis No. 2 therein referred to is the engine ton basis, and of it the Commission said.

"Basis 2 rests upon the claim that the greater speed of the passenger trains creates a greater degree of wear upon the track and other structures than would be the case were the passenger trains run at the same speed as freight trains. Inasmuch as this greater speed of passenger trains necessitates more power than would be required were the speed less, it is asserted that the weight of the passenger locomotives bear some direct relation to both the weight and the speed of the trains they draw. The locomotive ton-mile therefore to a certain extent measures the work done by the engines in each class of service, and to a certain extent forms a measure of the wear on track and structures. There is, however, a large proportion of the expenses incident to the maintenance of way and structures that is influenced only to a small extent and certain expenses are not influenced at all

by the weight and speed of the trains that pass over the track. The action of the elements and deterioration of materials will go on whether trains pass over the tracks or not. The effect of these natural agencies varies greatly with the location, the materials used in track structure, and with the season. It is uncertain how much of any particular item of expense is due to action of the elements and how much to wear. For example, no one can tell just how much of the expense incurred in the replacement of ties that are unfit for further use is due to the action of the elements and how much to the wear caused by the movement of trains. Various assumptions are indulged, as that 60, 70 or 80 per cent of such expenses are due to action of the elements and the remainder to wear. These assumptions appear to us to rest on uncertain ground. There is no doubt but that, other things being equal, the high velocity of passenger trains, as compared with freight trains, necessitates a better maintenance standard on that account.

The testimony of a number of operating and accounting officials of long experience supports the locomotive ton-mile method as in their judgment the most logical and practical method for the division of these expenses. The results of apportionments upon this basis compare closely with the results obtained by the use of Basis No. 3, shown on the same Exhibit. This basis proposed the division of the maintenance of way and structures expenses between passenger and freight in the proportion which the revenue passenger train-miles bear to the revenue freight train-miles. This basis may be said to rest, in the main, upon the assumption that these expenses should be divided between passenger and freight upon the use that is made of the track and structures by these two main branches of the service. It does not directly take account of the fact that passenger trains move faster than freight trains, nor does it take account of the fact that freight trains are heavier and longer than passenger trains."

The Commission rejected the various bases suggested, and in that case made the division on the percentage of the direct costs which were located in the one service compared with the other. The result was the assigning of 61.5 per cent to freight and 38.5 per cent to passengers. (See page 26, Supra.)

In this case the engine ton mile assigns to freight 51 per cent. (R. p. 854.)

The difference between 51 per cent and 61½ per cent is necessarily error, if the Interstate Commerce Commission is correct.

Where erroneous or doubtful sums go to make up the plaintiffs' case in rate suits, the defendants do not have to prove the extent or amount of them when they prove them to exist or likely to exist, the plaintiff fails. In the case of the Railroad Commission of Louisiana vs. Cumberland Telegraph and Telephone Company, 217 U. S., 414, there was evidence indicating that the figures submitted by the plaintiff were erroneous. It was insisted that the extent of error should be worked out. The Court, however, said: "If the onus rested upon the Commission to show these facts, it is evident that the obligation has not been fulfilled; but it is just here that the difficulty lies. It was obligatory upon the complainant to show that no part of the money raised to pay for depreciation was added to capital, upon which a return was to be made to stockholders in the way of dividends for the future. It can not be left to conjecture, but the burden rests with the complainant to show it. It certainly was not proper for the complainant to take the money, or any portion of it, which it received as a result of the rates under which it was operating, and so to use it, or any part of it, as to permit the company to add it to its capital account, upon which it was paying dividends to shareholders. If that were allowable, it would be collecting money to pay for depreciation of the property, and, having collected it, to use it in another way, upon which the complainant would obtain a return and distribute it to its stockholders. That it was right to raise more money to pay for depreciation than was actually disbursed for the particular year there can be no doubt, for a reserve is necessary in any business of this kind, and so it might accumulate; but to raise more than money enough for the purpose, and place the balance to the credit of capital upon which to pay dividends, can not be proper treatment. The Court below said it was impossible to find out from the books how much of this had been done, and it treated the fact as one to be explained by the Commission, and not by the complainant. In other words, while this fact was a material one, the onus was placed upon the Commission, and not the complainant, to show it. We think, on the contrary, that the obligation was upon the complainant. Now, although the books, it is said, do not show how much money collected for depreciation has been, in fact, used to increase the capital of the complainant, upon which dividends were paid to stockholders, yet, still, even if the books do not show accurately, or even at all, what disposition was made of these moneys, at any rate the officers of the complainant must be able to make up some reasonable approximation of the amount, even if it be impossible to state it

with entire accuracy; and this duty rests with the complainant, in order that it may discharge the duty devolving upon it to prove that the rates were not unreasonably high under Order No. 488, or, in other words, that they were unreasonably low under order No. 552. It may be that the sum, if any, thus used, was not enough to affect the claim that the rates under discussion were unreasonably low. The evidence is insufficient to show clearly that which complainant is under obligations to show."

It is possible that accountants could take these Exhibits and recast them from beginning to end and trace the extent of this error. That it is in error, this Court must be bound to recognize on account of the evidence in this record and the reasoning of the Interstate Commerce Commission after a most thorough investigation. The Commission has a better opportunity to obtain full data in regard to these matters than could be put into the record in a rate case where this is just one of the many other issues to be developed. Exhibit "CC" of Mr. Mayer and the testimony of Mr. Frates unquestionably prove that the engine does not represent the load behind it, or its speed, and that was the basis upon which the experts, Mr. Nay and Mr. Hamilton, justified its use.

The Interstate Commerce Commission did not have the data for all the direct costs and only applied such as it did have. If all of that data had been worked up in this case, as indicated from the report of the Commission on this subject, the percentage assigned to freight would doubtless have been much higher than 61.5 per cent. In fact the statistics in that case would indicate that the relation of the passenger and freight should be about 30 and 70, and the working up of all the data called for by the Commission will probably bring about such a percentage. That data is not before you; it is not in this record, and nothing but conjecture is left as to the extent of this error. Certainly it is more than 10 per cent of the principal item of expense of the railroad in the Maintenance of its Way.

It is confidently submitted that the use of this factor alone without considering any other matters presented herein, is sufficient to invalidate the Formula, and with it falls the plaintiff's case.

## TRANSPORTATION EXPENSE TO DIVIDE PROPERTY.

The Fomula on page 38 provides for the apportionment of the value of Right of Way and Structures between freight and passenger, line and terminal, state and interstate, mail

and express, on the basis of the expense for the maintenance of each of the facilities, and the Frisco modifies the Formula by substituting the Transportation expenses alone as the basis for the making of these divisions of the property denominated Right of Way and Structures. (Formula, pp. 38-39.)

Two propositions are involved herein: The first is whether expense is the correct basis to apportion property between classes of traffic; and the second is, can Transportation expenses alone be taken for this purpose?

Mr. Hamilton justified the use of the expense basis largely upon the testimony given by Mr. Ludlam and Mr. Wharton in the Arkansas case that such was a good basis of division. (R. p. 249).

The testimony of Mr. Wharton and Mr. Ludlam, the expert accountants working for the State in the Arkansas case, was put into the record and it is seen therefrom that each one of them was considering the expense as compared with the revenue basis of dividing property, and each of them considered the expense basis better than the revenue basis. Neither of them considered the use of Transportation expenses alone, but were speaking of the general proposition of using the total expenses for dividing the property and preferred it to the revenue basis. (R. pp. 444, 445 and 460.)

Mr. Hamilton says in support of it that the conglomerate unit of Transportation expense reaches every current of the railroad's activity; that the railroad is in business for the purpose of transporting freight and passengers, and that is the use it gets out of its track and that the Transportation expenses were reflctive of the common ground of freight and passenger. (R. p. 251.)

Mr. Hamilton was questioned as to why the Transportation expense instead of the engine ton mile basis was used to divide the property between freight and passenger when the engine ton had been used to divide these expenses between freight and passenger. He put in the result of a computation showing the difference in results had the engine ton mile been used for this basis instead of the transportation expenses basis. Had the apportionment of line values on the engine ton mile basis been taken for the year 1913, as an example, the concrete effect would have been to reduce the value of property assigned to intrastate freight 19 per cent and to increase the value of property assigned to intrastate passenger 18 per cent. In amounts it would change the return on intrastate freight as shown on Exhibit 22 from 1.07 per cent to .23 per cent, and to eliminate entirely the return of 2 per cent on intrastate passeger and leave the re-

turn upon the total intrastate business so small that it could not be found with a microscope. (R. p. 446.)

It will be remembered that this Exhibit 22 is made upon the valuation of property 27 per cent higher than that agreed upon and that without the corrections that materially change the return as shown in Exhibit "Y," and that it also carries with it the alleged extra cost percentage of 15.43 per cent on intrastate passenger and 319.58 percentage on intrastate freight. Hence the result of this change cannot be measured by the figures as given by Mr. Hamilton, but the fact that a change from the Transportation expense basis to the engine ton mile basis would work a radical difference is significant.

Mr. Nay says that the total line values are between 80 and 90 per cent of the total and the station values represent the balance of this account. As these values run into millions the effect of changing that basis upon them is very apparent. (R. p. 427.)

Mr. Nay was questioned at some length as to the reason that the expense basis could be representative of the use of the property.

In the confident belief that this Court can understand the reasons he gives therefor you are referred to pages 427-431.

But Mr. Nay does not approve either the Formula or the Frisco modification thereof in regard to this basis for the division of the line values common to freight and passenger. He prefers the Formula to the Frisco modification and in the Formula he would substitute engine ton miles for revenue train miles. (R. p. 425-427.)

Mr. Mayer questions the correctness, in the first place of using the expense basis to divide the value of the property, and in the second place if the expense basis is accepted the use of the Transportation expenses instead of all expenses (R. pp. 568-570), and gave at some length his reasons therefor.

Relating to the use of the Transportation expense alone he says: "To assume that they can be taken means that there is a consistent relation between the passenger one mile and the ton of freight one mile. In other words, suppose we had the actual expense of running a freight train, if it could be secured, and the actual expense of running a passenger train, and suppose they were equal: The passenger train is run according to schedules widely published. If ten people get on that is its train load; if twenty get on that is its train load. On the other hand, the freight train is run according to the necessities of the business; that is, they do not run them unless they have to, and they try to get a full train load

for them. * * * Now you have this relation: If your freight train costs an equal amount to your passenger train, and your expense of handling the passenger train, we will say is $20.00 and the number of passengers riding is twenty, then you have the expense at $1.00 per mile. In your freight train with an expense of $20.00 you will have 3,000 tons or 2,000, then your expense will be one cent a mile. That shows up actually just what the relation is in the expense. Here you have a train run for comfort, luxury and convenience. On the other side of the equation you have a train run up to efficiency. You cannot put any more business onto your freight train if you fill it properly, whereas your passenger train has to run whether you have a half or a quarter train load on them." (R. pp. 469-470.)

The status of the record is this: Mr. Nay does not agree with the Formula or with the Frisco modification thereof. Mr. Mayer disagrees entirely with the Formula and the Frisco modification. Mr. Hamilton sustains the Frisco modification. Three learned doctors of accountancy speak on this subject; no two of them are in accord. This basis for dividing a good many millions of dollars is supported alone on Mr. Hamilton's expert opinion.

## THE COURT'S OPINION.

In addition to the errors pointed out in the course of the argument to statements in the opinion of the Court attention is called to these following additional errors:

1. The Court states that considerable evidence was introduced on the part of the Company to establish the value of the road. "But later a stipulation was entered into between the parties agreeing that for the purposes of this case the average value per year of the property in the State of Arkansas for the years 1910, 1911, 1912 and 1913 was $17,924,-441.75, the value fixed by the State Taxing Board, and that the gross earnings in the State for the four years had been $16,688,486.86 divided as follows", and then follows a division in dollars and cents of intrastate freight and passenger and interstate freight and passenger. (R. p. 916.)

The Court evidently misunderstood the stipulation; there is only stipulation in the record on this subject, which reads as follows:

"It is stipulated and agreed that the value of the property of the St. Louis & San Francisco Railroad Company in the State of Arkansas used in operation during the period covered by the Exhibits filed by the complainant was, for the calendar year 1907, $15,692,338.00, and for all periods thereafter the following Additions and Betterments are to be added to said amount:

| | |
|---|---|
| During the fiscal year ended June 30th, 1908 | $895,842 |
| During the fiscal year ended June 30th, 1909 | $108,473 |
| During the fiscal year ended June 30th, 1910 | $748,853 |
| During the fiscal year ended June 30th, 1911 | $375,503 |
| During the fiscal year ended June 30th, 1912 | $311,947 |
| During the fiscal year ended June 30th, 1913 | $165,340" |

(R. pp. 906-907.)

There is no stipulation as to the gross revenue or the division of the gross revenue, or as to average value of the property. The whole stipulation is as above quoted.

The Court made many calculations which are apparently based on this mistaken view as to the scope and effect of the stipulation.

2. The Court says: "It was shown also by the undisputed evidence that these were normal years." (R. p. 916.)

The purport of several of the State's Exhibits was to bring these years to a normal average.

The statistics put into evidence by the Railroad and the supplementary ones put in by the State on this subject cer-

tainly prove that 1907 was not a normal year, and which was the normal year of these four years (they contained many variations, according to the statistics filed by the Railroad, in operating conditions) cannot be determined.

3. The Court says it was shown by the evidence that the months of November and December, 1913, were normal months as reflective of the year's business. Certainly the normality Exhibits 34-41, put in by the Railroad, and the averaging Exhibits put in by the State, demonstrate that they were not normal months.

4. The Court states at considerable length the views of Mr. Mayer and the errors of Mr. Mayer. Evidently on many of these propositions the Court has not understood Mr. Mayer's position. But these differences, or a correct presentation of Mr. Mayer's views, are so wholly immaterial to the issues that they will not be reviewed. Attention is merely called to them here so that this Court, in reading the opinion of the trial Court and in reading Mr. Mayer's testimony, will see that the Court has misunderstood Mr. Mayer on many matters, and that no concession is here made that the Court has correctly understood Mr. Mayer's criticisms.

The same thing is true of the Court's statements of Mr. Simson's testimony on many propositions, particularly his adaptation of the Berry Table to the Formula.

5. The Court misapprehended wholly the correction of the terminal costs and line costs as made by the State.

The Court said that it appears from the testimony of the accountants for both sides that the difference in the terminal figures had no relation to the ultimate correctness of the Company's Exhibits or to the equating proportions used by the Company to give effect to its new Formula, so far as the State is affected, while Mr. Simson's Formula would result in increasing the Company's showing of cost charged to the intrastate business in Arkansas. (R. pp. 925-926.)

The error made by Mr. Hamilton in computing the terminal and line unit costs was an error as to the proper method to apply in his own Formula.

Mr. Simson corrected it merely for the sake of accuracy. His Exhibits "B" and "D" used Mr. Hamilton's cost units and these Exhibits showed the constructive expenses to be much higher than the constructive expenses computed on the corrected units. By corrected unit is not meant the real unit of either terminal or line cost, but the real unit mathematically correct under the Formula and the Exhibits.

The use which the State made of these units was to demonstrate, as has been shown at great length in one of the chapters herein that the units as worked out under the Formula

are radically wrong in that they create an expense of about five million dollars a year above the actual expenses of the Railroad Company, thereby to prove that the Formula is fundamentally wrong.

Unfortunately the State was unable to make this position clear to the trial Court, as shown by his misapprehension of it. (See pages 925-926.)

6. The Court after making calculations, 927-928, says: "Nor would the result differ materially if we accept the figures of the State's accountants and apply them to the intrastate business of Arkansas, although they are made on the basis of net earnings to the entire system, an assumption without any basis to support it."

The Court overlooked the fact that the calculations made on the net intrastate earnings were based on the alleged extra cost of 15.43 per cent intrastate passenger and 319.58 per cent freight. This is but assuming the major and minor premises of the railroad to be correct, viz: that the Formula applied correctly the statistics of 1913 and that the equating of them back to 1907 was correct.

It is needless to say that no system of calculation where the intrastate bears such a burden would show a return which is compensatory.

7. On page 930 the Court said: "Exhibit 'O' of Mr. Simson is based on a Formula spoken of as Mr. Douglass', discarded in this case because found to be erroneous by Mr. Simson and admitted to be so by the Company's accountants."

The evidence shows that Mr. Simson approved the plan of the Douglass Formula of assigning expenses and revenues to the State, but he found errors in the assignment, not in the Formula.

Mr. Hamilton admitted many of these errors and criticized not the Douglass Formula but the Company's Formula for dividing passenger and freight which was used for comparative purposes.

Mr. Hamilton's criticism may also have run to the Formula for assigning to States, but the evidence is not so understood. The point, however, of this reference is merely to show that the Court misapprehended the force of the various Exhibits based on the old Formula contrasted with the new Formula as he evidently believed, as shown by this quotation, that the old Formula was discarded by everyone, and no value could be attached to it, whereas Mr. Hamilton repeatedly stated that there was little difference between it and the new Formula, and evidently his criticisms which the Court had in mind were of the Formula used by Mr. Doug-

las and the Railroad for separating passenger and freight, which was only used for their operating comparisons as stated in Exhibit No. 23.

8. The Court stated, page 930, in referring to the error of $23,000.00 found in the Memphis terminal expense assigned to Arkansas, Exhibit "G," that this was caused by the old or Douglass Formula. The error was not on account of the Formula but on account of change in methods as explained in Mr. Simson's testimony and admitted by Mr. Hamilton to be the fact.

This is merely referred to to show that the Court did not grasp the significance of the Formulas which are used for the equating process.

9. Finally it is stated that the claim of other errors in the Company's statistics have been carefully examined by the Court, but found to be not sustained by the evidence or are so insignificant in amount that they would not affect the final result to the extent of one-hundredth of one per cent.

The Court evidently overlooked the testimony of Mr. Hamilton wherein he admitted many of these errors. Exhibit "G" just referred to bringing an error into the equation of $23,000.00 was admitted.

Exhibits "V," "W" and "X" brought forward in Exhibit "Y," are also practically admitted as heretofore pointed out, and they show errors to such an extent that they raise the rate of return as shown by Exhibit 61 of the Railroad, which does not contain the corrections for the four months' period from 4.50 per cent as therein shown to 6.53 per cent as shown in Exhibit "Y."

While this Court has repeatedly stated that it will determine the facts in these rate cases and test the constitutionality of state action by the testimony unfettered by findings of Masters or conclusions of trial Courts (Knoxville vs. Knoxville Water Co., 212 U. S., 1), yet, very properly, the Court will consider with great respect the opinion of the trial Court. (Loeb vs. Trustees of Columbia Township, 179 U. S., 472; Memphis vs. Cumberland Tel. & Tel. Co., 218 U. S., 624.)

Therefore, it is considered right that attention be called to the errors made by the learned trial judge.

Respectfully submitted,

JOSEPH M. HILL,

Special Counsel for the State of Arkansas.

Supreme Court, U. S.
FILED
NOV 15 1915
JAMES D. MAHER
CLERK

No. 252

# In the Supreme Court of the United States

J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS,
APPELLANTS,

vs.

SIDNEY E. BOYLE, AND ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY,
APPELLEES.

## Motion to Advance

JOS. M. HILL,
Attorney for the Appellants.

GALVERT-MORRIS PRINTING CO., FT. SMITH, ARK.

No. 648

# In the Supreme Court of the United States

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J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS,
APPELLANTS,

vs.

SIDNEY E. BOYLE, AND ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY,
APPELLEES.

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## MOTION TO ADVANCE.

Come the appellants herein, the Railroad Commissioners of the State of Arkansas, and pray the Court to advance this cause for hearing as one of great public importance, and state:

## HISTORICAL.

In August and September, 1908, the various railroad companies operating in the State of Arkansas applied for and were granted temporary injunctions against the Railroad Commission from enforcing a schedule of freight rates promulgated by it contained in the Tariff known as Standard Distance Tariff No. 3 and from enforcing a passenger rate of two cents per mile enacted by the General Assembly of 1907.

That there were over twenty of said suits, involving all of the railroads, with a few exceptions, in the State of Arkansas, and of said suits, only two went to final decree, to-wit: The suit of the St. Louis, Iron Mountain & Southern Railroad Company and the suit of the St. Louis & Southwestern Railroad Company; that the suits of the other railroad companies, by mutual consent, were left upon the docket of the district court awaiting the final disposition of the suits of the Iron Mountain and Southwestern Companies; that the district court in the suits of said Iron Mountain and Southwestern Companies made perpetual the temporary injunction theretofore granted, and the State, through its Railroad Commission, appealed from said decrees to this Court, and this Court, in June, 1913, reversed said decrees with directions to dismiss the

complaints without prejudice. Immediately thereafter this appellee company put into effect Standard Freight Distance Tariff No. 3 and the statutory two-cent per mile passenger rate.

That said Railroad Company prayed and was granted by the district court time in which to recast its exhibits and complaint and to prepare its evidence to meet the rule announced by this court in such cases in the series of decisions known as the State Rate Cases, involving the rates in Minnesota, Missouri and Arkansas.

## THE ISSUES.

The appellee Railroad Company on final hearing presented to the Court a Formula which purports to properly distribute revenue and expenses and to apportion property between freight and passenger traffic and between intra-state and inter-state freight, and intra-state passenger and inter-state passenger traffic; that said Railroad Company contended that said Formula met the requirements of the opinions of this Court in said State Rate Cases as to the proper evidence to show that rates promulgated by State authority were confiscatory, and that the periods represented by such tests were representative of the actual condition of the affairs of the company, and that the methods used

under said Formula to obtain the condition of the affairs of the company for the periods under inquiry actually represented the condition of the affairs of said periods. The State denied each of said contentions, and contended that the Formula did not meet the requirements of this Court as to the class of evidence necessary to invalidate State made rates; that the test periods were not representative; that the methods used for arriving at the condition of the affairs of the company for the period of inquiry were unsound and uncertain, and not reflective of the true condition of the affairs of the company, and that proper calculations of the intrastate expenses and revenues and the proper apportionment of property of intra-state and inter-state business showed that the rates attacked were yielding a compensatory return upon the property devoted to the State traffic. The district court sustained the Formula and issued a perpetual injunction against the enforcement of the State freight and passenger rates. The appellee Railroad Company at once put in force a schedule of State freight rates higher than the rates promulgated in Standard Distance Tariff No. 3, and put in force a 3-cent per mile passenger rate in lieu of the statutory 2-cent per mile passenger rate. The General Assembly of Arkansas directed the Railroad Commission to prosecute this appeal.

## THE PUBLIC IMPORTANCE OF THE CASE.

1. Every passenger and every shipper of freight in the State of Arkansas on the line of appellee Railroad Company is daily being required to pay a rate in excess of the rates promulgated by the State, and said passengers and shippers have no evidence furnished them by the Railroad Companies of such excess in rates.

That the railroads whose decrees were reversed by this Court heretofore contended that in the interval between the decree perpetuating the injunctions and the reversal thereof by this Court that the injunction bonds were not liable for the excess rates paid by passengers and shippers of freight, and these appellees are informed that this Railroad Company is so contending in litigation growing out of the reversal of the Missouri Rate Cases; that the appellee Company is in the hands of receivers, and has given an injunction bond of only $200,000, which is wholly inadequate to repay shippers and passengers, should this decree be reversed and it be finally determined that shippers and passengers are entitled to have such excess paid to them.

2. That the Formula in this case is now being used by the appellee Railroad Company and other Railroad Companies as a basis for contesting State

Rates in Oklahoma, Missouri, Texas, Kansas, and probably other states; that it is of the utmost importance to the Railroads and to the States that said Formula receive a speedy construction by this Court.

3. That after the decree in this case three of the Railroad Companies operating in Arkansas, to-wit: St. Louis, Iron Mountain & Southern Railroad Company, St. Louis Southwestern Railroad Company, and Chicago, Rock Island & Pacific Railroad Company applied for and obtained temporary injunctions against the enforcement of the statutory passenger rate; that as a result of the decrees in this case and of the subsequent decrees in said other cases the statutory rate of passenger fare is enjoined on over 95 per cent of the railroad mileage in said State; that the district court has continued the hearing of the temporary injunctions of said three Railroad Companies until after this Court has had time to pass upon this appeal and until the Legislature may take action in regard thereto.

4. The regulation of all railroad rates in Arkansas, both freight and passenger, by the Railroad Commission and the General Assembly of said State is affected by the decision of this Court in this case.

## TIME OF SETTING.

The appellees state that they have diligently prosecuted this appeal and the Clerk of this Court informs them that the record will be printed within .....days.

The appellees further state that their brief cannot be properly prepared within less than sixty days after the record is printed.

WHEREFORE, the appellees pray that this cause be advanced as one of great public importance, and that they be granted until the ..... day of ..... to file their briefs herein, and the appellees be granted such time as may be necessary to properly prepare their brief and that the cause be set for oral argument thereafter at such date as may suit the convenience of the Court.

JOS. M. HILL,
Attorney for the Appellants.

# APPELLANT

# REPLY

# BRIEF

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No. 648

# In the Supreme Court of the United States

J. SAM ROWLAND, WILLIAM. F. McKNIGHT AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF ARKANSAS, *Appellants,*

*vs.*

SIDNEY E. BOYLE, EXECUTRIX, AND ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, *Appellees.*

## *Appellants' Brief in Reply*

### ARGUMENT.

### THE ISSUE.

On page 2 of the appellees' brief it is stated: "Counsel assume that the issue in this case is whether the earnings were compensatory when the preliminary injunction was granted." The complaint alleges that the rates were confiscatory and asked relief against them by preliminary injunction and perpetual injunction. The circuit judge granting the preliminary injunction, now a member of this Court, evidently regarded the issue to be whether the earnings were compensatory when the preliminary injunction was granted, because he required a bond conditiond that the railway defendant keep an account of the rates and fares charged over the inhibited rates, not that they might in the future become confiscatory, "and further conditioned that if it should eventually be decided that so much of this order as inhibits the enforcement of existing rates should not have been made, that the said railway defendant, within a reasonable time to be fixed by the Court, refund in every instance to the party entitled thereto, the excess of charge over what would have been charged had the inhibited rate been applied, together with lawful interest and damages." (Record

page 35.) His opinion on the subject also discloses that this was the issue presented to him and the showing was satisfactory to entitle the railway to a preliminary injunction. In Re Arkansas Rates, 163 Fed. Reporter, 141.

On page 3 it is contended that if it should turn out that the rates yielded a reasonable return during the four months' period (referring to the financial statement of the four months of 1907, upon which showing the preliminary injunction was granted), but that during the succeeding four years the return was confiscatory, the rates could not be held reasonable. This position is unsound. If for 1907 it was now proved that the rates were compensatory, then the preliminary injunction was erroneously granted, and the bond guarding against such contingency would be liable, notwithstanding that in a later year, say 1913, it was proved that these same rates were then confiscatory. This proposition is not important here, for the subsequent years, as well as 1907, show a return well above the confiscatory level, yet there is this further point in regard to the preliminary injunction: It was obtained on statistics of the four months' period of 1907 purporting to give a financial showing of the road, and on the face of it showed a confiscatory return of the rates sought to be enjoined. In this showing, however, the property was divided between state and interstate on the gross revenue theory. The expenses were divided between state and interstate on the gross revenue theory, and to the state expenses, on strength of the affidavits of experts, was added 25 per cent extra expense for intrastate passenger and 100 per cent extra expense for intrastate freight. (R. 58, 59.)

In addition to these fundamental errors it was proved on the trial of this case through Mr. Hamilton, the railroad accountant who prepared the exhibits herein, that the original statistics submitted by Mr. Douglas, the Auditor of the road, to Judge Van Devanter, which made up the apparently confiscatory returns, contained these further errors:

First: $74,260.08 was carried into the operating expenses as the four months' proportion of a yearly charge of 4 per cent dividend on preferred stock of a leased line. (Of this amount $12,000 was charged to intrastate business.) (R. 129-131, 134.) This same item was brought into the exhibits here and when the facts were developed Judge Trieber promptly held that it would be a double charge and could not be maintained. (R. 131, 132.) Thereafter the appellees filed exhibit 28, eliminating it. (R. 2125.)

Second: Various items aggregating $18,788.17 were erroneously included therein. These were items of "Interest on bonds and notes in the treasury"; "Interest on bank

accounts"; "Interest on advances"; "Interest on sinking funds"; and "Dividends on Stock." All of these were stricken out of the statistics for the present case. There were overlooked items aggregating practically the same amount presented in the exhibits. (R. 136, 137.)

Third: There was an item of interest of $391,919.03 included as expenses in the statistics presented to Judge Van Devanter. This item was not brought forward in the statistics here. (R. 141.)

Fourth: There were also errors of $48,399.20 designated "mathematical errors." These largely consisted in putting in items of expense which were incurred in Missouri, Kansas and Oklahoma. (R. 146.)

Thus in the statistics presented to Judge Van Devanter there were items now admitted to be errors amounting to $533,365.41. These errors are in addition to those developed in the testimony herein, which are shown in exhibits "V," "W," and "X" and brought forward into exhibit "Y." The errors in these exhibits alone, as heretofore shown, raise the rate of return on the whole business in the state from 4½ per cent to 6.51 per cent. In view of the preliminary injunction having been granted on statistics now admitted to be erroneous to the extent of over one-half million dollars, certainly it should be dissolved unless in lieu of the showing then presented is offered substantial evidence clearly and decisively proving that the rates at that time were producing a confiscatory return on the property.

The appellees' brief, continuing on page 3, states that the counsel for the appellants says that the case should be dismissed and liability on the injunction bond enforced for overcharges during the time the injunction was in force, on the ground that it was improperly issued, notwithstanding the court had correctly found that the rates were illegal and could not be enforced. Such is not the position of the counsel for the appellants; almost exactly the contrary was stated at page 68 of the appellants' brief.

It is there stated: "The primary question here is whether the preliminary injunction should have been granted in 1908." And later it is stated: "It is true that should the Court find that the injunction was improperly issued at the time, but that later a changed condition of affairs showed confiscation where there had theretofore been compensation the plaintiff would be entitled to an injunction against the rates from such time as the change occurred, but that principle is academic here because the actual return for the year 1913 as shown both by the Railroad Company's Exhibit No.

61 and the State's Exhibits "AA" and "BB" is larger than for 1907.

"This is true even if the diminution tables are applied and the revenue reduced to a level of the State rates applied to the traffic of 1913. (R. p. 753.)"

The issue is simply whether the rates were confiscatory when the preliminary injunction was granted. If they were not confiscatory then, did they become so at any later period? If it is now clearly and decisively proved that they were confiscatory when the preliminary injunction was granted, it should be made perpetual. If it is not so proved, then it should be dissolved. Should the testimony show that at some later period these rates had become confiscatory, then from such later period the appellees would be entitled to have a perpetual injunction and the decree framed accordingly. Such is the thought in Louisville vs. Cumberland Telegraph & Telephone Co., 225 U. S., 430. But there is no changed situation here. No confiscation is shown for any period except through the Formula, and it shows it for all the periods. This Formula is so framed and devised, with its accumulation of excessive terminal charges, which produce 15.43 per cent extra cost for intrastate passenger and 319.58 per cent extra cost for intra state freight, that no schedule of rates could be compensatory under results shown through it.

The statistics are collected on page 47 of the appellants' brief wherein it is shown that the state freight revenue per ton per mile is 24.79 mills while the interstate revenue per ton per mile is 7.76 mills, and yet this Formula produces a deficit of intrastate freight of $9308.59, and a return on the property devoted to interstate freight of 5.61 per cent (which would be largely increased by the correction of the errors as shown in exhibits "V," "W" and "X").

The question naturally occurs, if this Formula is correct, how high state rates could be made in order to show a compensatory return. It is admitted throughout the case that the cost per ton mile for line expenses is the same state and interstate, and the cost per ton for terminal expenses is the same state and interstate. Necessarily then, the only difference in the state and interstate expense would be the extra terminal of the state, and that is shown to be under this Formula 31 cents per ton. The railroad's voluntary rates for interstate freight produce a revenue of 7.79 mills per ton mile, and such revenue produces a good return on the property and one terminal expense of 31 cents attaches to a material portion of that traffic, and yet the state rates producing 24.79 mills per ton through the operation of this Formula produce a deficit instead of a return.

It is stated on page 10 in the appellees' brief: "The division between line and terminal expense is largely the basis of the entire plan of apportionment contained in the formula in this case." "Aye, there's the rub." Continuing it is stated: "Notwithstanding the fact that the line and terminal service is the most natural and obvious line of primary or fundamental division of operating expenses as between the different classes of traffic, it has never been used as an underlying factor in any division heretofore attempted, so far as we are advised." A monumental service rendered to the public and to the railroads has been the classification of accounts of the railroads by the Interstate Commerce Commission. The Commission has been working on this subject for many years, and has been perfecting the system year by year. While the system was forced on reluctant railroads, yet after it became operative they saw its benefits, as well as the public, and the Commission has had the aid of the brightest railroad accountants in the country in improving the classification of railroad accounts.

The expenses of railroads are divided into five primary accounts, and these are subdivided into 116. (Ex. 8, page 1991 is arranged on them.) Since these Exhibits were prepared, the Commission has refined the accounts still further and added quite a number of additional classifications. The Commission holds many investigations for the purpose of proper accounting, and in these investigations all interested parties are heard, and the best results are obtained after investigating and hearing. A notable instance of this has been heretofore referred to, and that was the protracted investigation and hearing of the Commission on the subject of the proper factor to divide the common expenses between passenger and freight. It is truly stated that this is the first instance where expenses are divided between line and terminal. It must be mortifying to the Interstate Commerce Commission to find that it has for years overlooked "the most natural and obvious line of primary or fundamental division of operating expenses as between the different classes of traffic." It is passingly strange that the appellee Railroad Company has not enlightened the Interstate Commerce Commission upon this subject when it recently had cases before it where this formula for dividing expenses between passenger and freight and state and interstate would have completely answered all questions at issue. The Corporation Commission of Oklahoma, the Railroad Commission of Ar-

kansas, and the Public Service Commission of Missouri, filed a petition before the Interstate Commerce Commission against the Frisco Railroad, Santa Fe, Rock Island, and other railroads operating in Arkansas, Missouri and Oklahoma, seeking to have declared unreasonable and discriminatory the three cent per mile interstate passenger rate prevailing in spots in those states. The case came to hearing on May 14, 1914, and was decided July 18, 1914. It is reported as Corporation Commission of Oklahoma et al. vs. Atchison, Topeka & Santa Fe R. R. Co. et al., 31 I. C. C. Rep. 532. The formula is not mentioned, but Commissioner Clements stated that some of the carriers had made adjustments of pending injunction suits, and witnesses testified for these railroads that it was the intention of the cariers to further contest the intra-state passenger fares prescribed in Kansas, Missouri, Arkansas, and Oklahoma, and "that active efforts are now being put forth to obtain statistics to be used in further litigation." (See page 535.)

Mr. Hamilton and Mr. Nay testified that this formula was produced in the fall of 1913, that the committee went to work upon it immediately after the decision of this court in the State Rate Cases. Mr. Hamilton testified that his road gathered the statistics concurrently of the months his road gathered the statistics concurrently for Arkansas and Oklahoma of the months of November and December, 1913. (R. pp. 70, 71, 76 and 114.) Mr. Nay stated that his road, the Rock Island, gathered their statistics in September and October of 1913, as their cause in Oklahoma was set for hearing on the first of January, 1914, but it was continued, and they completed their statistics for November and December, 1913, making a four months period and that the gathering of these statistics for the Oklahoma case cost between $75,000 and $100,000. (R. pp. 323, 328, 329). Thus it is seen that this formula, which its proponents claim divides all expenses between freight and passenger, state and interstate, in the minutest detail, had been prepared fully six months before said case was submitted to the Interstate Commerce Commission, and the statistics gathered in compliance therewith, which would show the result of the application of the formula, had been completed over four months before this cause was submitted to the Interstate Commerce Commission. Instead of presenting the formula and this minute detail of expenses, the witnesses for the railroads stated that they were gathering statistics for further litigation over these State rates.

One possible explanation is this: The carriers were then seeking to sustain an interstate rate, and had they shown to

the Interstate Commerce Commission that the intrastate passenger service cost 15.43 per cent in excess of the interstate passenger service (Exhibit 17, R. p. 2022), and the Interstate Commerce Commission been in possession of the fact that the intra state passenger traffic was this much more expensive than the interstate passenger service, doubtless a calculation would have been made in charging the intrastate traffic with this excess cost, and the expense of the interstate traffic computed separately from it, which would have materially increased the net earnings of the interstate. As this same exhibit (17) works out 319.58 per cent extra cost of intrastate freight over interstate freight, should the results under this formula be presented to the Interstate Commerce Commission on a hearing of reasonable interstate freight rates, it would hesitate quite a bit before increasing interstate freight rates until a proper level of state rates was made, so that the state freight traffic would bear its just share of the burden.

In a later case before the Interstate Commerce Commission, reported as the Western Passenger Fares case, 37 I. C. C. 1, this road with others convinced the Commission "that the business done by passenger train service is less profitable on the whole than is the freight service in this territory." (See page 33.) Had the results worked out through this formula, been before the Interstate Commerce Commission in that case, showing that the interstate freight made a return of 5.61 per cent and interstate passenger 7.05 per cent, it would have been somewhat embarrassing to the contentions then made by the railroad company. These reasons may, or may not, explain why this formula has not been presented to the Interstate Commerce Commission by the road now before this court in cases where it was pertinent and where it purported to separate freight and passenger, state and interstate, in the minutest detail. It is significant that that Commission charged with the duty to see that proper railroad accounting is made has not yet been enlightened as to "the most natural and obvious line of primary or fundamental division of operating expenses as between the different classes of traffic."

It is true that in the Western Passenger Fares case, 37 I. C. C. 1, this railroad and the other railroads interested in the Arkansas and Oklahoma litigation did present to the Commission the engine ton mile as a proper factor to divide common expenses between freight and passenger traffic, and it will be noticed in reading that case that some of the learned counsel who participated in the formation of the formula were counsel for the railroads in that case. But

they failed to convince the Commission that the engine ton mile was the proper factor. In fact, the Commission said it was not. It is true that line and terminal is the basic principle of this formula. It is the threshold of the edifice, and upon that threshold one must stumble. It is an artificial distinction, one not utilized in railroad accounting, one not susceptible of application to operating conditions and one not recognized in daily practice. The sanhedrim of the litigating railroads who originated this formula attempted to do the impossible, to separate all expenses into divisions to which they did not naturally belong. It has drawn lines where no lines exist. It has made distinctions where there were no differences. It has created demarkations when there are none.

It is stated at page 10 of the appellees' brief that the nearest approach to this plan was that of the State in the Arkansas rate case, Allen vs. St. L. I. M. & S., 230 U. S., 553.

Mr. Hamilton testified that the Arkansas plan was the background of this. (R. p. 74.) The one who presented that plan to the trial court and defended it there and in this court most earnestly protests an allegation of similitude. The few good things in this formula are taken from that one, and these were factors vigorously criticised in every detail by Mr. Nay, who now so earnestly supports this one.

The division of freight expenses, first between local and through trains, and then the division of state and interstate expenses of those trains by the ton miles, was clearly taken from the state's plan in the Iron Mountain case, as it is approximately followed in this formula. The apportionment of superintendence and general expenses on the basis of the located charges under those accounts was also taken from the Arkansas plan, but in this formula it is not only correctly applied, but incorrectly applied to many items to which it is inapplicable. The division of passenger trains on a space basis between mail, express, baggage, coach and Pullman was adopted in a way in this formula, but herein is confused and made unreasonably burdensome to the state traffic in ways that will be hereafter pointed out. There was no attempt in the formula in the Iron Mountain case to make any distinction between line and terminal. The attempt of that formula was to directly allocate all expenses to state or interstate where that was possible, and where impossible to group kindred expenses and divide them upon the factor applicable to that class, directly reaching to the division between state and interstate. For instance, all yard and terminal expenses were thrown into one class. They were the expenses of division points and where switch engines were

maintained and these yard and terminal expenses were divided between the state and interstate on the number of cars in and out of the yards and terminals, thus directly and accurately locating to each class of traffic the expenses of the service rendered to each. Had the railroads here spent some money in gathering this data, and they say that they spent much money in gathering statistics for this formula, they would have had an accurate division so far as it went between the state and interstate in this great item of expense.

In lieu of that, under this Formula, the making up and breaking up of trains in division yards, is classified as line expense and the line expense is divided between state and interstate on the respective ton miles of each. As the intrastate freight haul was only 25 miles in 1907 and in 1913 (Ex. 39, R. page 2143), the state traffic obtains little, if any service in these division yards, as they are usually 100 miles apart. If the Arkansas plan had been followed these expenses would have been apportioned directly to the cars, state or interstate, which obtained the service, and incurred this expense. The Arkansas formula divided Maintenance of Way expenses on the freight side on the car mile basis, making a proper allowance for the additional use of the local trains, and of the heavier weight of the locomotive. It was developed therein, that the car mile was the basis of contracts between railroads where one used the road of the other for their relative proportion of Maintenance of Way expenses. In fact, there was an existing contract between the two railroads then before the court (Iron Mountain and St. L. Southwestern), for the maintenance of a track of 100 or more miles in length on the car mile basis. It was shown that this was the factor commonly used in contracts of that sort. As that factor was adopted between railroads in contracts between themselves for the Maintenance of Way expenses it was thought that would be the proper basis to use in a rate suit, but such use was criticised by Mr. Nay and the railroad witnesses, and when the formula was adopted here it was conspicuous by its absence, and in lieu of it the Maintenance of Way expenses are divided between passenger and freight on the engine ton mile basis and the property of the Way is divided on the Transportation expenses.

It is true that the Arkansas formula was crude. It did not attempt to go into all of the questions which are solved to the satisfaction of the railroads in the present formula. It began the work after the assignments to the State, and after the separation between freight and passenger. It was commented upon by Mr. Justice Hughes in that case, but as the lower court had discarded the test months and substi-

tuted various bases not sustained by the evidence, to make calculations of important divisions, the result of the court's plan, which was in part based on the Arkansas formula, was necessarily discredited.

As the appellees are seeking to bolster up this formula, through the testimony of Mr. Nay and Mr. Hamilton, and the statements of their learned counsel by the Arkansas formula, it has been thought well to call attention to some of the radical differences between them. It may be a prejudiced criticism, but yet it is a candid one, to say that the few good things in this formula are taken from that one, but the basic principles of that one are conspicuous by their absence from this one, and the basic principles of this one are not to be found in that one.

As counsel for the appellees has broadly stated and correctly stated that the division between line and terminal expenses is largely the basis of the Formula, your attention is called to some of the obvious errors, to put it mildly, of the application of this division.

*Use of Overhead Basis.*

It is a sound principle of accounting that expenses of superintendence or executive, or overhead expenses as they are generally called, should be distributed on the basis of the expenses actually located. For instance, a superintendent of three separate departments should have his salary divided on the basis of the expense of those three departments. It is assumed that the expenses will measure the time and service he gives to each of these departments. This principle is applied in this formula, and was taken from the Arkansas formula, and the soundness is not questioned, but in applying it in this formula they carried it to an excess. It seems that wherever a factor cannot be found that is suitable, that that expense is divided upon some other expense without any relation one to the other. For instance, take accounts 101, 102 and 103, Damage to Property, Damage to Stock, and Injury to Persons, respectively between line and terminal (Formula page 16), and between freight and passenger (Formula page 20), and terminal expenses between freight and passenger (Formula page 23), which are located direct when known, and the balance apportioned on the basis of the located. (Exhibit 8, R. page 1991) gives the apportionment between the line and terminal for the test months of November and December, 1913, by the Interstate Commerce Commission accounts. It is seen therefrom that account 103, Injuries to Persons, is $4347.05 and is apportioned on this basis: $2536.98 to the line and $1710.07 to terminal. In other words, over 40 per cent of the injuries to persons is

assigned to terminal. When it comes to an apportionment of these same items assigned to line freight between intrastate and interstate, they are divided on the basis of the respective gross ton miles (except injuries to persons, which are located as far as possible from the vouchers.) (Formula, page 30.) Mr. Nay, in his testimony in the Iron Mountain case objected to using train mileage as the factor to divide these casualty accounts on the ground that casualties did not occur with regularity—that is with reference to train mileage—and yet, he states the ton mileage division of these expenses in this formula is sound. (R. page 349.) Certainly they do not occur with any more regularity in regard to ton mileage than they do to train mileage.

Coming back, however, to the division of these casualty accounts on the basis of the located claims. Should a person be injured in one of the test months in a waiting room, it would be assigned to terminal. This is an accident that may occur at any time, and may not occur for many years, yet the happening of this accident in a test period fixes this expense according to the place where it occurred, between line and terminal, and that test period is used to equate the relative expenses between state and interstate back to 1907, and those expenses largely hinge upon the relative amount of terminal expenses as the state is charged with two terminals as against one for the interstate. This equation carries the assumption that the same number of people were injured in terminal service in 1907 that were injured in terminal service in the two months of 1913, and does not stop with that, but becomes the basis to divide all of the unlocated items between line and terminal, freight and passenger, etc. Suppose, for instance, this $4,000 which is being divided in the test months, 10 per cent of it was actually located either in line or terminal then that 10 per cent is used as the basis of taking care of the other 90 per cent of the accidents. To use the language of Mr. Justice Holmes, this is setting down every figure "with delusive exactness." (City Louisville vs. Cumberland Tel. & Tel. Co., 225 U. S., 430.) This error is just begun when the unlocated accidents are divided on the basis of the located ones, because when thus divided they become the basis for further division, superintendence of that department, general expenses, and are time and again used for the division of other unlocated expenses.

Mr. Nay admits in his testimony which is quoted at page 10 of the brief, that there are some expenses like general expenses, which are not in direct relation with either terminal or line, and their apportionment between line and terminal is made under the provision of the formula. The formula

provides for these to be apportioned between line and terminal on the basis of all accounts theretofore, 1 to 105. (Formula page 16.)

Turning to Exhibit 8, page 1991, sheet 3, containing the statistics of the test period, which is the basis for the extra costs carried back to 1907 by *nunc pro tunc* proceeding, it is found that these general expenses amount to $20,686.78. They are apportioned, to line $13,138.57, and to terminal $7,548.21. Nearly 40 per cent of the general expenses are assigned to terminal. The state passenger and the state ton of freight is chargeable with two terminal expenses to one for part of the interstate, and to none for part of the interstate (the transtate). The President's salary and expenses of his office, law department, claims department, pensions and other items of general expense, are so apportioned that when they are set on the terminal side of the ledger, state traffic bears at least double the proportion which the interstate traffic bears, according to the workings of this formula. The President sits in his office in New York, attending to the finances of his company, giving attention to its larger affairs, without any thought or attention to such artificial distinctions as line or terminal in the operation of his railroad, but when the formula comes into play, the President's salary is divided between line and terminal on the basis of all of the accounts of the road, and then the state traffic gets a double charge for all that part of it assigned to terminal. None of his work or that of his office force is divided between line and terminal. They render service for the road as a whole, not to it in these parts not recognized in railroad operation, and not set down in railroad accounting. In 99 instances out of 100 it cannot be determined whether the service rendered occurs from a transaction described herein as line or described herein as terminal. It would be impossible to trace it. The President deals with the finances and the general management; the law department deals with the questions of law, policy, and the handling of litigation. Some little of the litigated work might be located to one or the other, but the bulk would be impossible of allocation.

Pensions is an item of general expense. On this road it is pitiably small. They have $411.74, and yet these pensions are divided between line and terminal. The state passenger and state ton of freight will pay more pensions than interstate passenger or interstate ton of freight, because forsooth all expenses must be divided between line and terminal; *reductio ad absurbum.*

Mr. Nay admits in the quotation referred to that these

general expenses are not related either to line or terminal, and he as one of the authors of the formula should have seen that such an attempt was not made, for he must have known that the result of it would have been to unduly burden the state traffic by assigning to terminal, expenses that were not related to that subject. Such unrelated subjects could have been set apart, and apportioned directly to state and interstate on the basis of the overhead, without carrying them through this artificial distinction which operates so disastrously to the state traffic without any reason for it so doing.

*The Symons Percentages.*

The formula provides for the division of locomotive, freight car, and passenger car repairs, renewals and depreciation to be divided between line and terminal, according to the opinion of an expert. Mr. Symons was that expert. Taking the freight car repairs to illustrate the point. He illustrated his percentages by applying them to 28 cars. The Frisco system has 32,017 cars. (R. page 508.) His conclusion finds expression in these 28 cars, and he admits that the result would be different if applied to 2800 cars, but says it would not affect his opinion as to the contributing causes of the injuries. (R. page 508.) He took a car from four different roads, and distributed the repair bills of them as follows, making the terminal charge on the Frisco 76 per cent, on the M. K. & T. 78 per cent, on the Rock Island 72 per cent, and on the Santa Fe 75 per cent for these particular bills. He did not know the history of any of the injuries. He took the bills for repairs, and applied his formula to them with these results. He could not tell whether those injured from derailments had been injured in line or terminal service. Where injured in collision, he could not tell whether the injury was at a station or on the line. (R. page 512.) He had not worked out any way to ascertain or to get a table that would take care of the place of injury. (R. page 514.) Yet he locates all injuries either to line or terminal.

The formula assigns injuries to freight cars in making up and breaking up trains at division points to line and switching cars in making up and breaking up trains at way stations and junction points to terminal. Mr. Symons admits that the same class of injury occurs, and the object of the movement is the same in each instance; that is, in each case, the train is being made up for further movement in the one instance in a division yard and in another instance at a junction point or way station, where cars are set out or picked up and the train re-made for the purpose of further transportation. The only difference he makes out is that

the train crew is more efficient than the yard crew, and there is not so much rough handling at the way stations and junction points as there is in the yards, but the occasion of each movement, the purpose of it and the character of it is exactly the same, and yet because of the formula, classing one as line and the other as terminal, he so sets down a distinction in his allocation of his expenses to line or terminal accordingly. (R. page 636-640.)

A broken link in making up a train at a division point becomes a line expense, and the state traffic, which rarely goes into the division point, is charged with a mileage proportion of it, yet a similar link similarly broken, while making up a train at a junction point is terminal service, and the expense of it is chargeable to state traffic in the proportion of two to one of the interstate.

Mr. Symons in referring to locomotive repairs stated that all mechanical engineers recognized these as contributing causes of injuries, viz., starting and stopping, getting up steam and making up trains. He states that no one could figure out the proper percentage of either one of them to line or terminal. He says that probably if a corps of experts were to follow one individual engine, they might probable be able to make some estimate on it, but they would not be able to arrive at exact figures for the reason that they do not know when certain injuries occurred to an engine, as a great many of them, and some of the most expensive ones, are what they call hidden defects. That is they are not visible to the eye. For instance, a locomotive comes in for repairs or general overhauling, and it is found after it comes into the shop that a driving wheel is cracked, or a driving box is broken at some point where it could not have been seen on inspection, or that a cylinder or cylinder saddle is defective in a way that it is not shown in service. No one could say whether it happened at the station, in switching cars over a hill or while running along at maximum speed between stations. It might occur almost anywhere, or it might be the result of a combination of strains, which the part underwent in these various services, and which could not be sub-divided and separated.

In the face of this candid and fair explanation of how injuries occur, yet this pseudo scientist locates every item of expense either to line or terminal, and makes out a percentage of 65 per cent for freight terminal repairs. He admitted that the Wellington tables properly classified the contributing causes of injuries to cars. These were six, viz., (1) depreciation, (2) starting and stopping, (3) switching, (4) curvature, (5) grades, (6) distance. (See appellants'

brief, page 55.) He recognized each of these as well known contributing causes for these injuries. He gave no other causes than these established ones. He refused to estimate the line or terminal proportion of any one of these contributing causes. These are the six causes of all injuries, and he has taken cognizance of each, and divided the whole into two parts, but is unable to give the two parts of any one of the six causes, making up the whole.

This division of equipment repairs between line and terminal is radically and inherently wrong, because impossible. Ex. 8, page 1991, shows the equipment repairs of these three items amount to $107,470.73, out of a total expense of $544,378.83. In other words, over 20 per cent of the total expense of the test period upon which all of this extra expense of state traffic is worked out is affected by Symons' division between line and terminal, and indirectly much more is affected by it. For instance, account 46, shop machinery and tools, is divided on this basis, and part of account 16, shop building and store houses, is also divided upon it. A search of various bases in the formula will doubtless find where it was repeated elsewhere, as a part of located expenses upon which unlocated items are divided. But these are sufficient to illustrate the materiality of Symons' percentages. It is a case of arithmetical progression of error in assignments of terminal expenses, resulting from which the state traffic bears a two-fold burden and the so-called extra expense of state traffic over interstate runs up quickly under such formula.

Take a broken axle on a locomotive that is not discovered until it gets into the shop, and divide the expense of repairing that axle between line and terminal, when no man knows where it occurred, how it ocurred, or the cause thereof; or take a number of freight cars wrecked by a derailment or collision. They go into the shop, and are repaired. Symons has made no record and has no information as to whether the accidents occurred in line or terminal. Of course, such instances as that could be followed up and ascertained. In this case, it has not been done. He has taken no account of the place of the injury or particular service in which it was received, but has followed his general observation, experience and judgment, and decided that 65 per cent of these freight car repairs occur in terminal service. He says that 80 per cent of the injuries to freight cars is due to rough handling in yards, and yet the principal injuries in yards is due to making up and breaking up trains, which is classified as line service. His whole testimony is a bundle of impossibilities and contradictions. He was attempting to do the impossible, and instead of frankly stating that it

could not be done, as he did in the instances referred to, tried to justify what he had done by explaining that which could not be explained. It is earnestly requested that you read his testimony in full, and not accept any abstract of it, but read it as given, and determine whether he is scientist or charlatan.

It developes in his testimony as heretofore set out (B. page 52-56) that his percentages are at war with Wellington and Webb, writers on this subject, and Berry, who prepared a paper on it which was read before a body of engineers. But be that as it may, Symons' testimony falls of its own weight and needs no refutation. It, at best, is the same class of testimony which was condemned in the Minnesota, Missouri and Arkansas Rate Cases, of the eminent railroad officials who testified to the alleged extra cost of intrastate. This is extra cost of terminal as compared with line, indirectly attaching to and creating the extra cost of intrastate.

*Arbitrary Divisions Between Line and Terminal.*

The formula, page 12, in dividing between line and terminal, account 16 provides for the maintenance of general offices, reading rooms, and eating houses to be divided half and half, and also that account 14, maintenance of telegraph and telephone lines be divided half and half.

Referring to the division of telegraph and telephone lines, Mr. Hamilton said that it was impossible to apportion them and that this arbitrary division was made. (R. page 238.) In fact, line and terminal expenses, as defined in this formula are not applicable to any of said items, except telegraph and telephone, which is from its nature largely a line expense. The maintenance of eating houses while not line expense within the definition of the formula is more analogous thereto than to terminal. The eating houses are for the benefit of travelers on the train, and not those arriving and departing at stations where the eating houses are situated. These are the passengers for whom this necessity does not exist. The state passenger is charged more than double his share of the half of eating house expense charged to terminal. Exhibit 6, page 1979, shows the intrastate passengers to be 217,909, the interstate 148,978 and the transtate 8,140. These transtate passengers (the long haul) are the ones who would naturally get most benefit out of eating houses, yet no terminal expenses would attach to them, and they would have a free lunch, so to speak. The interstate passengers of 148,978, would have one terminal expense attached to each, while the intrastate of 217,909 would have two attached to each.

Exhibit 39 shows the average journey of the intrastate passenger in 1907 was 18.84 miles, and in the test period 19.06 miles, while the average haul of the interstate for the same periods in Arkansas was, for 1907, 42.59 and in 1913 39.89, and it must be remembered that this is only the interstate haul in Arkansas. This interstate haul is a segment of the longer haul, and only represents so much of the interstate journey as occurs in Arkansas. (R. page 872-874.) The half of the eating house expenses charged to line would be divided between the state and interstate passengers on the respective passenger miles. As the state passenger only travels 19 miles he gets little if any benefit out of the eating house. It is the same proposition in another form, where state tons are charged with yard expenses in division points, as Exhibit 39 shows that the state freight averages 25 miles. In charging the expense of maintaining in the one instance the eating house and in the other instance a division yard, for which no service except in rare instances is rendered to the intrastate, injustice is done to the intrastate in line expenses. The general offices, like the General expenses, are not related either to line or terminal, but are here split in half, between line and terminal, and unequal proportions of the terminal part falls upon the state and the interstate. In Exhibit 8, page 1991, is given the salaries and expenses of general offices as $1794.49, divided, to the line proportion $1194.19, and to the terminal of $600.30, and the salaries and expenses of the clerks and attendants as $7857.30 divided to the line $5118.73 and to the terminal $2738.50. In other words, to maintain the buildings, housing the general officers, clerks and attendants, is assigned 50 per cent to the terminal, yet the salaries of these officers and employees using the buildings are assigned approximately 35 per cent to terminal. Even this assignment to terminal is too high, and results from the excessive terminal charges in the Symons percentages, and other like matters which is the subject of this discussion.

Account 14 is for the maintenance of the telegraph and telephone lines for the two months making the test, and Exhibit 8, page 1991, shows that the amount of this is $898.88, one-half assigned each to line and terminal. Account 94 is the expenses of operating telegraph and telephone lines and is the amount paid employees for conducting telegraph and telephone operation. This account is divided between line and terminal on the basis of all operating accounts, and results in charging $974.76 to line and $474.69 to terminal. This alone proves how arbitrary is this charge of 50 per cent terminal: the operation of these lines cost the terminal side one-half

what it does the line side, and that is too much for the reasons just stated, because the other local expenses are already excessively charged to terminal proportions. These are just other instances of the arithmetical progression of error, and while these particular accounts are small, yet their division between line and terminal furnish the basis of many other larger items, and in those the error grows larger.

*Assignment of Tracks.*

Exhibit eight, page 1991, under accounts 2 to 10, Maintenance of Way Expenses, shows that the amount for the two test months was $114,143.07. All of this was assigned to line except $5,223.50, which was assigned to terminal. This amount is relatively small, but is a considerable sum of itself, and the basis for it is well worth looking into.

In the formula, at page 12, the tracks are divided into classes a, b, c, d, and e.

(a) Are the main line and passing tracks and are assigned to line.

(b) Are the station tracks and are assigned to terminal, and the freight side thereof.

(c) Are the yard tracks, classification and storage tracks and are assigned to line. These are the tracks upon which the trains are made up and broken up and their classification to line is elsewhere discussed. It operates unfairly to the state by having the state traffic bear part of the expense of the service for which it rarely obtains a benefit. These tracks and the expense incurred in maintaining them and the corresponding expense in Transportation for the switching crews operating upon them and the expense in Maintenance of Equipment used upon them ought not to be treated as either line or terminal. These expenses ought to be treated, in order to fairly divide them between state and interstate, as was done in the Iron Mountain Case by the state, wherein they were segregated with other like expenses of yards, and divided between state and interstate in proportion to the cars of each which used these facilities and incurred these expenses, and suffered the injuries therein.

(d) Are the shop, store house, and repair tracks, and they are divided on a basis of the repair charges; and again the Symons percentages swell the terminal expenses attaching to their maintenance. Why the maintenance of these tracks should be divided upon the basis of injury to cars that may occur upon them is a proposition that others may be able to understand.

(e) Are engine house tracks, turn tables, wyes, fuel and water tracks, and these are distributed on accounts 72

and 81, which are in turn distributed on time studies and engines handled, and therefore some of it will go to terminal, although the uses to which these tracks are put do not in any way fall within the definition of terminal within the formula. In truth, general utility tracks, such as these, are not susceptible of division between line and terminal. They serve all ends of transportation alike.

*Incongruities in Superintendence Expenses of Terminals.*

There is one sound principle at least in the formula (borrowed from the Arkansas case), which is apportioning superintendence in proportion to direct charges for which the superintendence is directed. This principle is uniformly applied in this formula not only where it should be, but in many instances where it should not be. It works out a bundle of incongruities here. Exhibit 8, page 1991, giving the apportionment for two months in 1913, shows these results of superintendence: In Maintenance of Way the total is $7830.76, all of which except $566.16 is assigned to line; the terminal expense of Maintenance of Way for superintendence costing about 7 per cent. Under Maintenance of Equipment the amount is $3255.18, and divided practically even between line and terminal. Under Transportation, the expenses are $8159.85, of which $5276.97 is assigned to line and $2882.88 to terminal or about 35 per cent to terminal. The Symons percentages of excessive charges in equipment to terminal and the time studies in the Transportation accounts are undoubtedly the causes of raising the terminal expense of Transportation to 35 per cent and of Equipment to 50 per cent, while Maintenance of Way is only 7 per cent terminal.

*Accounts Impossible of Division Between Line and Terminal.*

Taking the Interstate Commerce Commission classification of accounts as found in Exhibit 8 wherein the expenses are divided according to them between line and terminal, and examining them, it will be found that many of them, from their nature are insusceptible of division between line and terminal. First in order are accounts 1 to 23 for the Maintenance of Way and Structures. Some of these accounts, like telephone and telegraph lines, eating houses, and stores are confessedly incapable of division and arbitrarily apportioned 50 per cent and 50 per cent. The big items of ballast, ties, rails, etc., are dependent upon the correct location of the tracks to line and terminal. The allocation of these expenses are automatic as the formula pre-

scribes what tracks are line and what are terminal. Hence to determine the correctness of the apportionment the assignment of tracks to line and terminal must be considered. Mr. Nay admits that the tracks are constantly used in other services than that designated in the formula, but claims that the other use of them is either nominal or the use of some other track for the other purposes will offset the use of them for the given purpose. These are his "general impressions." (R. page 348-350.) He admits, however, constant use of the main track at the station for switching purposes, whereas it is all designated line. If the passing tracks and main tracks are used, as unquestionably they are, at times, for switching and other terminal service, undoubtedly the allocation of all expense of their maintenance to the line side is to the extent of the other use, erroneous. The accountants who prepared this formula in order to have been accurate must have had knowledge of all railroad operations and set down the same correctly in the formula. These are operating, not accounting, usages. But passing the division of the physical structures and taking the items of expense that are not dependent upon the physical nature of the facility. The next items are the Maintenance of Equipment accounts, and as heretofore shown the big items are locomotives and car repairs, renewals and depreciation, which constitute about one-fifth of the total expense of the road. They are from their nature and from the inability to discover the cause and location of the injuries insusceptible of being assigned to line or terminal. Injuries to persons may occasionally be located to one or the other, but when done would not be a reliable yard stick with which to measure other accidents. Such items as stationery and printing and "other expenses" are general in their nature and bear no relation to line or terminal. Traffic expenses are totally disconnected with either line or terminal; this is a subject discussed elsewhere.

Station service can be located to line and terminal if a proper record could be made of the time that each employee devoted to each class and if there was any means of definitely determining the service of the employees separately devoted to each class. The method pursued to obtain this division was in time studies, and it is discussed elsewhere.

Yard service is so constructed under this formula by the arbitratory classification of its chief function—making up and breaking up trains—that it is impossible to work out any division of it relating to the real uses of the service as between state and interstate. This is a large item, over $30,000 involved, and on a basis of cars in and out of the yard every

dollar could be located in either interstate or state, as the case may be. This yard service is not either line or terminal within the definition of those terms in the formula, but is arbitrarily nominated line. It is an intermediate service between origin and destination, similar to receiving and delivering freight, but it is a part of the journey between termini. It is service in a different form from the balance of the trip and is served by different forces working under different management from the train movement. The train service, consisting principally of the wages of the train crew, fuel, etc., is a subject of easy allocation between state and interstate, if the class of trains are preserved, and the expense of those trains are divided in the relative proportion to the state and interstate traffic upon them. Instead of this simple division, time studies are worked out and an apportionment between line and terminal based thereupon made and subsequently the division of both line and terminal between state and interstate is ultimately worked out.

The casualty accounts have been elsewhere discussed, and the inapplicability of this division to them is self-evident. As it is admitted by Mr. Nay that the General expenses "are not in direct relation to either line or terminal" it is not necessary to dwell upon that subject further.

## TIME STUDIES.

The appellees' brief on page 11 states: "Through a test made in the months of November and December, 1913, in complying with the provision of the formula, definite information was obtained in regard to a matter which has given rise heretofore to much opinion and speculative evidence in regard to the increased expense of transporting intrastate over interstate traffic, growing out of the long and short haul incident to the two classes of traffic." This "definite information" of the so-called increased cost of the intrastate expense depends upon the accuracy of all of the factors used in this formula. Counsel speak of the result worked out under this formula as if it were definite and free of opinion and speculative evidence, yet this formula requires more opinion and speculative evidence to sustain it than the plan pursued by the railroads in the preceding rate cases. In the former cases they had two fundamental theories to establish by opinion and speculative evidence, the revenue theory, and the extra cost theory, while

this formula must be sustained on opinion and speculative evidence in each of the particulars heretofore enumerated on pages 59 and 60 of appellants' brief. The statistics gathered afford no solution of the problem of extra cost, if there is any, of state over interstate, unless all the bases directly reflect the use of the property or service performed. The "definite information" of the so-called increased extra cost of the intrastate is not based on the statistics gathered, but on the value of the many bases of applying those statistics in different ways. Hardly any figures gathered by the railroads after all their enormous expense to gather statistics to sustain this formula reach directly to the alleged extra cost of intrastate or the relation of the state to the interstate. In the main they are statisics of local or through trains, showing the time the crew spends on a train in running or stopping at a water station or way station or the time that the employees in a station devote to the passenger, express or freight service or the time in the yard which the switch engine or crew devotes in making up or breaking up trains or other operating service, and the consists of the trains. Much useful data is given and much useless data is given. Instead of using what is gathered directly and simply, it is attempted to be worked out through this formula in multitudinous ways. In the case of Gast Realty & Investment Company vs. Schneider Granite Company, decided by this court on January 31, 1916, Mr. Justice Holmes, speaking for the court, gave a description of this formula without then intending to apply it to the formula. He was referring to an ordinance of the city of St. Louis and described it as "a farrago of irrational irregularities throughout." It is thought that the English language is not capable of affording a more accurate definition of this formula than the one herein quoted.

The use of all these statistics is dependent upon the value of some theoretical base. For instance, much information has been gathered from the yards and stations, as to the relative service rendered passenger or freight. But all of these statistics go into the waste basket because the formula uses the engine ton mile to divide the common expenses between freight and passenger, the largest item, which is the subject of division, between these classes of traffic. This basis is proved to be so wide of the mark that necessarily the ultimate assignments between freight and passenger become valueless. The line proportion of maintenance of way, which is divided between freight and passenger, is $128,-319.78, nearly one-fourth of the total expense of the period. (Exhibit 8, page 1991.) Much useful data was gathered in

shops, and on trains relating to the maintenance of equipment, but it is rendered useless by the excessive proportion of the equipment charges assigned to terminal by Symons and the indirect effect of that in other places where they are applied, whatever valuable data may be obtained is lost by it being merged with bases which cannot be sustained. Fully one-fourth of the total expenses are influenced by the Symons percentages. The arbitrary division of all expenses into line and terminal carrying into terminal many items not applicable thereto and in other instances making palpably excessive terminal charges such as 50 per cent maintenance of general offices, telegraph and telephone lines and eating houses, and the Symons percentages, etc., create an impasse for line and terminal as presented here. There is another phase of the line and terminal division as well as the freight and passenger division and the resultant effect on state and interstate which has only been referred to incidentally in the appellants' first brief, which is much stressed in the appellees' brief, and that is the TIME STUDY.

The "definite information" which counsel claims has been obtained of the so-called increased expense is dependent on the truth and accuracy of the numerous time studies as well as the other factors heretofore discussed. Appellees' brief, pages 12 to 16, explains the time studies and Exhibit 2, which is interestingly summarized in the appendix of appellees' brief, pages 202 to 208, gives the railroad version of it in full. Trainmen made out reports of their runs, giving the starting and leaving time, and the time for all stops, and the time devoted to different services at the stops. Switch-engine foremen made out reports of the services of the switch engines in the yards, and towermen of the passing trains under their towers, and the station agents divided up their own time and that of all employees in the station into the various departments of work therein.

Account 16, Maintenance of Buildings, Fixtures and Grounds, except that part guessed off half and half, is divided on the time basis study. The maintenance of station employees is divided on time study basis resulting in the two test months, in assigning $34,416.56 to terminal and $7,008.61 to line. (Exhibit 8, page 1991.) The yard service of over $30,000 is divided on a time study basis, resulting in almost half being assigned to terminal. Road engine service and train service of about $140,000 is divided on the time study basis. Almost half of the total expenses of the test months is divided on some of the time studies. The blank forms which were given the employees to fill out constituting these time studies are found in Exhibit 2a-2k. The most

far-reaching of these is Exhibit 2h, the report of train stops and terminal delays.

The conductor and train clerk are required to report the leaving and arriving time of the train, name of station stopped at, hour and minute of arriving and departing, time of stop on account of train operation, the balance of stop or station service, and terminal delays, due to switching and other causes. Mr. Hamilton explains fully the method of making these reports. (R. page 120 and 125.) Take a concrete example of these stops on the Frisco road in Arkansas. A through passenger train going north up Boston Mountain will stop at Chester for the purpose of getting a helper engine, and to get orders, these will be classed as train operations, and also to take on passengers, which will be a terminal operation, and to take on mail and express. This report gives no time for mail or express. The next stop is Winslow, where the helper engine is dropped, and train orders obtained, each of these will be classed as train operation. This is quite a summer resort, and during that season there will be many passengers and much baggage to leave the train. This is also in the fruit be't, and in season there will be much express, and at all these stations there will be mail taken on and off. The conductor and the train clerk must accurately divide the time of these stops in such a way that his report makes the basis for a division between line and terminal. Shortly after that train entered the State, it reached Fort Smith and there stopped ten minutes. This ten minutes was used to change engines, put on a diner, and at certain seasons of the year an extra Pullman, and to receive train orders, deliver express, mail and baggage, and to discharge and receive passengers, mail and express and baggage. These ten minutes must be divided by the conductor and train clerk some way, some how, between these services so that the proper basis of division between line and terminal is made.

Take the freight side of the problem. The through freight trains run through from division point to division point with few stops, except for water and fuel, and train orders, but occasionally they do set out or pick up cars. The difficulty of the conductor and train clerk will be minimized on those trains. The local train, however, runs from division point to division point, and makes stops at every station. Whether there is any freight to receive or take off or not, it must stop there upon the principle of readiness to serve, or it may be in the hope of business. While at a local station orders will be obtained in many instances, water and coal supplied, freight of all kind put on and taken off,

switching of all kind done in the setting out and picking up of cars; and the freight conductor and clerk have the apportionment of this time to make out so as to work out line and terminal performance. In many instances, in eastern and southern Arkansas particularly, the local train will pick up cotton at the way station and carry it to the nearest compress station, and deliver it to the compress, and it will be compressed, and later shipped out in compressed form, but the cotton will be billed from the way station to Boston as an interstate shipment. There would be four terminals on this cotton. And in many instances the same process is carried on with lumber where it is picked up on spur tracks and saw mills, as logs, and carried to a town where there is a mill, turned into lumber, and shipped without the state with three or four terminal services. In many instances passenger cars in the fruit belt of Arkansas stop at the sidings and stations for the purpose of taking on fruit carried by express. How the conductor and train clerk were to divide this between line and terminal is not explained in the evidence.

All of these movements herein referred to are explained more or less definitely in the testimony, and these are merely taken as illustrative instances showing the duties placed before the conductor and the clerk in making out their report, which become a basis of this division between line and terminal.

Exhibit "2I" is the form report of the switch engine foreman. His time is divided up into half hour periods and those half hours he must set down as engaged in making up and breaking up trains, handling cars for icing, handling cars for loading and unloading, switching cars to and from connecting lines, handling cars without switching limits, or unloading within switching limits, handling cars to and from rip tracks, and of passenger switching, and of dead time. This can be done. Whether these switchmen did it accurately at the time or guessed off their reports at night or at the end of the month, there is nothing in the evidence to determine. If the switch foreman had time to set down each of these movements, half hourly, the proportion charged to "dead time" would be great.

The towerman's report is simpler and unimportant to this case. It is Exhibit "2J." The station agent's report is "2K" and he is required to divide the wages of every one in the station from himself to the janitor, between freight, express, mail and telegraph service.

Mr. Hamilton was questioned about the compilation of these reports, particularizing as to Big Jim, a useful negro at Mansfield, who was engaged there in the station in han-

dling mail, express, freight and baggage, and in doing all kinds of work around the station, and he stated that Big Jim's time was divided up by the agent in one of these reports into the various classes of service as therein shown. (R. page 120-125.) The state accountants were given an opportunity to examine this vast multitude of reports in the company's office, but it was not thought it was worth while to examine these individual reports as the State assumed that the railroad company had correctly summarized the result of the reports on file. No train conductor, no train clerk, no station agent, no switch engine foreman and no towerman was called to substantiate his report or explain how it was made or the accuracy with which he did it. The only testimony on the subject was Mr. Hamilton's expressed confidence that these employees had properly made out the reports according to instructions.

These are not like reports that employees make in the due course of their employment accounting for every act performed by them, but reports made purely for the purpose of litigation and not for train operation, station duties or switch engine duties. The summary of these reports compiled by the railroad as their time studies is a mathematical epitome of hearsay evidence. Upon these unverified and unsupported reports made by hundreds of employees, many of them required to solve perplexing problems in the making of reports, about half of these expenses are to be divided. Do such reports constitute the "definite and convincing proof" which this court declared it was encumbent upon the railroad in order to establish the invalidating facts in attacking State made rates? This is not information called for by the court in the case quoted from, Allen vs. St. L., I. M. & S., 230 U. S. 553, as these statistics do not bear upon the costs of intrastate traffic as compared with interstate traffic, but they bear a supposed distinction between line and terminal service, and a distinction between freight and passenger service, and also a distinction between mail and express and the passenger service in stations (but not on the road). Then after they are used for the purpose of such divisions, other factors are applied to work out ultimately results between state and interstate.

*The Auxiliary Cars.*

On page 15 of the appellees' brief it is stated that auxiliary car proportion of expense is divided between intrastate and interstate on the basis of the total number of passengers of both classes carried one mile in passenger trains containing the coach and Pullman passengers, because the auxiliary cars serve both alike. The auxiliary cars are baggage, dining and observation cars. (R. page 84.) Exhibit 13, page

2014, is a division of line passenger expense, mail and express excluded, between coach service, Pullman service and other passenger train cars and between intrastate and interstate traffic. This Exhibit shows that of the passengers riding in Pullmans, 14.68 per cent are state and 85.32 per cent are interstate. Of the passengers riding in coaches 43.46 per cent are state and 56.54 per cent are interstate. The expenses attaching to the transportation in coaches is divided between the state and interstate, on the proportion of the state and interstate in each and the same is true of the expense attaching to transportation in Pullmans. But when the expense of the auxiliary cars are divided between the state and the interstate, the coach and the Pullman are drawn together on the theory as stated in the quoted excerpt that they are used alike by all passengers. That produces a percentage of 40.55 state and 59.45 interstate. Exhibit 39, page 2143, shows the average intrastate passenger journey, in 1907, was 18.84 miles, in 1913 was 19.06 miles, while for the same periods corresponding interstate journey was 42.59 and 39.89, but this interstate journey is only so much of it as is in Arkansas and is a segment of a longer interstate haul. It is apparent that the passenger taking an interstate journey of 19 miles has but little use for a baggage car or an observation car, and none at all for a dining car. Unless the train is exceedingly slow he would not get his bread and butter before his journey would be ended. There is occasionally some service obtained from baggage, dining and observation passengers, even if their journey is only 19 miles, but it is well known that these cars are primarily for the use of interstate passengers—those on long journeys. Mr. Nay quoted several times an expression in the formula as to the assignments which are "incurred exclusively or substantially exclusive in a particular service." (Formula page 3.) Certainly these auxiliary cars, particularly the diner and observation cars, are "substantially exclusively" for the interstate passenger, yet a state passenger is made to bear an equal proportion thereof, according to the passenger miles, with the interstate passenger. The concrete result is shown in Exhibit 13. The maintenance of way expenses of the auxiliary cars is $9620.07. The maintenance of equipment expenses are $2919.07. These are divided upon the percentage of 40.55 per cent state and 59.45 per cent interstate. If they are divided on the percentage of state and interstate riding in the Pullman, which is 85.32 per cent, charging the state passengers with only 14.68 per cent, a rough calculation will show that there is an overcharge to the state of $3203.00. This may not be exactly accurate, as some of the interstate passengers in coaches may use the diner and the obser-

vation car, and unquestionably some intrastate do use baggage cars, and now and then diner and observation cars, but certainly it is unjust to charge the state passenger, whose journey is only 19 miles, with 40.55 per cent of the expense of the baggage, diner and observation cars.

## TRAFFIC EXPENSES.

The Traffic expenses were set down in the formula and in these exhibits on the terminal side of the division between line and terminal, but in dividing these expenses between state and interstate they were divided on the line units instead of the terminal units, the division being on passenger mileage and ton mileage, state and interstate. ( Appellees' brief, page 17.) These expenses for the two months test period were $14,052.29. (Exhibit 8, page 1991.) Traffic expenses are incurred for the Vice President in charge of traffic, the traffic solicitor, general freight agent, general passenger agent, outside agencies like those in New York, and other cities, and other like items. (R. page 189-190.) The average intrastate passenger journey is 19 miles and the average intrastate haul is 25 miles. (Exhibit 39 R, page 2143.) The services rendered for which these expenses are incurred can from their nature be of little, if any, benefit to the intrastate traffic. The big items of these expenses are advertising and maintaining outside agencies. It is impossibie to conceive any substantial service resulting to the state traffic with this extremely short haul, for offices in New York, St. Louis, and San Francisco, and for expenses of advertisments setting forth the excellence of the service and the beauty of the scenery on the Frisco lines. The long haul traffic and competitive traffic which constitutes the interstate traffic is the one receiving the benefit of these expenses. These expenses are proper and doubtless bring good returns or else they would not be incurred. Mr. Nay and Mr. Hamilton express the opinion that this formula represents the use of the facility or expense, but intrastate passenger and the intrastate freight gets little or no use from these expenses. Where the journey is as short as this one, and where the freight haul is as short as this one, it means that only such trips are taken on this road as are necessary and it cannot mean that competitive business is being obtained by these outside agencies and these expenses for advertising purposes. This item will illustrate how extra expenses are built up against the intrastate traffic. From its nature, it is an expense attaching to the long haul business which is necessarily interstate on this road, because this road cuts into three corners of the state, and the average haul and journey is as just given.

The great amount of work done in division yards in the making up and breaking up of trains which are almost entirely interstate, and the charging of the intrastate passenger with an equal proportionate share of the dining cars, observation cars, and baggage cars, and charging him with an equal mileage proportion of the expenses of eating houses and charging him a double proportion of the terminal expense of them, show that the intrastate is being unfairly dealt with throughout, even in comparatively small matters. When the large matters resulting from the use of the engine ton mile, Symons percentages, and the time studies are considered it is easy to understand how the tremendous percentage of extra cost is worked out.

## EQUATING BACK.

On page 56 of the appellees' brief it is stated that the appellants do not contest the soundness of the principle upon which the equation was based, but attack it collaterally, so to speak. Then there is a reference to one particular attack made by Mr. Simson, as if that was the only direct attack made upon it. The series of exhibits introduced by the state demonstrate that the four months period was not normal, or if the appellees prefer to put it the other way, that the test period was not normal, because there was serious and material difference between the operating and traffic conditions of the two periods. These exhibits constitute a most direct attack leveled against the equating of one period into another.

In addition to this broadside, the appellants made many detailed attacks upon it, and it is confidently submitted that each of these attacks are sustained. The principal ones of them are these:

(a) An excess of $23,080.62 was assigned to Arkansas for the four months period due to errors in computing the Memphis expense of the test period, and using the expense of the test period to equate back to the former period. (R. pages 610, 611, and Exhibit G, page 2234.) This item is sought to be minimized (Appellees' brief, page 57), by tracing out its effect on the intrastate traffic, but that is begging the question. Before there could be any separation of the state and interstate, the expenses must be properly assigned to the state, and the intrastate traffic could never be shown to be compensatory when burdened with the excessive cost alleged to be worked out against it under this formula, and this one item is one of the matters that helps to work out that extra cost.

(b). Difference in actual assignments of the two formulas in addition to the above error amounting to $24,581.60 in the account of injuries to persons, and $1649.09 in account of damages to property. (R. page 887.)

(c) The use of the total of the amounts for equation instead of using the five groups of accounts as arranged by the Interstate Commerce Commission, resulting in overcharging the state $7397.80 (R. page 612 and 613). This is the instance referred to on page 56 of the brief, as if it was the only attack upon the equation method. Mr. Hamilton sought to justify this method and went further and attempted to prove that if the apportionment had been made between freight and passenger of the non-revenue service that the assignment to the state would have been over $8000.00 more, but he made a blunder in this. Mr. Simson was only dealing with the assignment to the state, not the distribution, after the expenses were assigned to the state. This is fully shown in appellants' brief at page 73.

(d) The use of engine ton mile in the test period carried back to 1907 will carry its error into the equation.

(e). The test period assigns part of the expense of the Memphis bridge which is interstate to Arkansas intrastate which necessarily carries back that error to 1907. (R. page page 89.).

(f) The normality exhibits show such dissimilarity of the two periods that one cannot be reflective of the other. (Appellants' brief, page 75.)

At pages 58 to 64 of the brief of the appellees, it is argued as if the errors discussed in the appellants' brief were corrected by the railroad company. It was only the so-called "mathematical error" of $48,000 and the rental of the Kansas City, Memphis & Fort Scott Railroad, which were corrected by the railroad company, found in Exhibits 27A and 28. None of the other errors were corrected in any of the railroad exhibits. Mr. Simson used all of the railroad exhibits, including their errors, except where otherwise expressly specified, and his exhibits for the particular items substituted for the railroad's are therein stated.

## NORMALITY OF THE TEST MONTHS.

At page 80 of the appellees' brief is an apparent effort to shift the question from the normality of 1907 to the normality of the test period in the last two months of 1913. Elsewhere the issues of this case are discussed, and that subject will not be repeated. It makes no difference

to the purpose of this case whether the four months of 1907, the period of inquiry, or the two months of 1913 were the normal period, or one was normal and the other abnormal. They must fit into each other in order to give any value to the equating process. The statistics demonstrate that they do not fit into each other, and the errors demonstrate that they do not fit into each other. The normality exhibits were put into the case to prove that they did reflect the condition of the railroad not only for those two months, but for a year and a series of years.

When the appellees began the introduction of their testimony of the test period of November and December, 1913, the appellants objected to such testimony. Mr. Hamilton was asked by counsel for the railroad if that test of that period was reflective of the year's business and the results obtained. Mr. Hamilton answered that they thought so from investigations and comparisons which they had made. Mr. Hamilton repeated that an investigation convinced them that these two months were reflective of the entire year. Then objection was interposed to taking a later year, and by *nunc pro tunc* proceedings carrying it back to 1907. The court replied: "They may be able to show that the facts obtained for 1913 conditions were the same and would apply to 1907 and 1906. Those are all questions that simply relate to what weight shall be given to the evidence." (R. page 76 and 77.) Mr. Hamilton continued with his testimony, finally introducing Exhibit 17, showing the extra cost of 15.43 per cent intrastate and 319.58 per cent intrastate freight, and stated, "This exhibit brings to a focus the results of the two months' test that we made." Then this occurs:

"THE COURT:

"Q. Are the items considered by you so general that they may be taken as representative of any year, any month or any time?

A. We have in process of preparation figures which we believe, as to the traffic and operating conditions, will show that; whether they do or not, of course, will depend upon their submission and examination here. We are preparing it and it is our judgment at this time, as far as we have gone, that this is a representative period. That may be refuted.

Q. And will apply just as well to 1906 and 1907, as it does to 1913 and 1914?

A. We believe in our ability to convince your Honor of that.

Q. What is that?

A. We believe in our ability to convince your Honor of that.

Q. You have evidence to show how it applies?

A. Yes, sir.

Q. That is the objection that was made by Judge Hill.

A. Whether it will be sufficient will depend, but we think at this time that it will." (R. page 91.)

Later Mr. Hamilton introduced the normality exhibits confessedly to meet the objections raised by counsel of the appellants and questions of the court. (R. page 448 and 450.)

## STIMULATION OF TRAFFIC.

On page 84 of the brief, counsel calls attention to a mistake which was made in the appellants' brief in assuming that the second and third columns on page 3 of Exhibit 42 represented different sales. A re-examination of the exhibit shows that that mistake was made. The third column contains both the cash and ticket sales, whereas it was treated as containing only the ticket sales. The showing for the contention of the state is more favorable when this correction is made than it was in the statement of the facts in the appellants' brief. The point made was that the stimulation of traffic at border points while large in percentage, was small in actual traffic, and the figures were quoted from the exhibit showing this, and through error the columns were treated separately. The traffic at these border stations is materially less than stated in appellants' brief and the point is stronger than there made to appear on account of doubling the two columns. Attention was called to the fact that the court found that the stimulation of traffic at Jonesboro, Hoxie, Ashdown, and other interior points, which was from 28 to 33 per cent, was due to the re-buying by interstate passengers of intrastate tickets, whereas the exhibit showed that those points were selected as an illustration of the difference in the increase at places where there was no such buying and at places where there was such buying. Counsel says, "The facts upon which the finding was made are all in the record, and the court was obviously right in its conclusion." The only testimony on that point in the record is that of Mr. Hamilton, and this exhibit. Mr. Hamilton testified, "If we go into the interior of the state where passengers would have no incentive to re-ticket to cheapen the cost of an interstate journey we find that at Jonesboro the increase is only 33 per cent." The exhibit states in explaining the tables placed therein: "Also table showing the ticket

sales to Arkansas points from interior Arkansas stations sufficiently removed from the border to make no incentive to interstate passengers to re-ticket there." In the face of this evidence, and the only evidence on the point, it was found that this increase at these places was due to the change in the rate and counsel says that the court is obviously right. Counsel refers to the increased traffic under the two cent rate, as being nothing but re-buying at border stations, and therefore not bona fide intrastate increase.

Mr. Hamilton had an investigation made which caused him to deduct from the intrastate traffic the amount which his investigation led him to believe was not bona fide intrastate traffic, but really interstate traffic, which had availed itself of the cheaper rate, and found the passenger miles increased 21 per cent and a decrease in revenue for the year, when the two cent rate went into operation, under the three cent rate, of 14 per cent. (R. page 458.) In the face of this statement these diminution tables are applied for the test period of 1913 and the series of years where the three cent rate prevailed as if the decrease would have been 33⅓ per cent had a two cent rate been in force. Yet Mr. Hamilton finds that the decrease was only 14 per cent after subtracting from the intrastate what he thought was not bona fide intrastate traffic. This proves a decided increase in bona fide intrastate traffic and a falling off in revenue of 14 per cent, not 33⅓ per cent as claimed.

## CRITICISM OF MR. MAYER.

In discussing the engine ton mile for a basis between passenger and freight the appellees' brief devotes much of it to a criticism of Mr. Mayer. (R. page 88 and 105.) Stray excerpts from his testimony are set out and he is severely criticised throughout this discussion and elsewhere throughout the brief. Mr. Nay and Mr. Hamilton testified in substance that the engine ton mile was the proper factor to use, because the engine represented the load behind it, and that the engine took into consideration in a limited way the speed of the train. Mr. Mayer put into evidence Exhibit "CC," compiled from the company's records, which completely upset the theories of Mr. Hamilton and Mr. Nay. This Exhibit "CC," was closely scrutinized as to its compilation and meaning and stands established. The reasons for the conditions shown in Exhibit "CC" are found in the testimony of Mr. Frates, who was put on the stand by the railroad and fully explained the operating conditions which made the

reasons for the conditions which Exhibit "CC" shows actually existed. That is, that the engine did not represent the load behind it, or its speed. The exhibit shows that the engines were carrying from 40 to 90 per cent of their rating. There was no uniformity in their haul, and yet the engine ton mile irrespective of the speed on which the engine was run or the load carried would be the same. Having upset their card house, Mr. Mayer naturally came in for criticism. It is not the purpose of this brief to review the arguments presented by Mr. Mayer or any other opinion witness. They are wholly inconsequential to the decision of this case. The developed facts will control here and not the opinions of Mr. Mayer, Mr. Nay, Mr. Simson or Mr. Hamilton. This attack upon Mr. Mayer is wholly unwarranted from anything said or done by him upon the witness stand, or elsewhere. Through a long cross-examination conducted by the learned counsel for the appellees and also counsel for the railroads of Oklahoma, he gave his reasons for every position taken, Whether his position was sound or unsound, depends upon the reasons given by him, and they are set forth in his testimony and you are most earnestly requested to read it in detail, particularly his cross-examination.

The railroads are intolerant of any witness, particularly one from a State Commission who disagrees with their eminent officials. This has been developed in many cases before this court, and your memory of the railroads' attacks upon the witnesses in the Minnesota and Missouri and Arkansas cases is referred to to substantiate this statement. For instance, Mr. Hamilton, who is the principal witness in this case for the railroad, appeared in the Iron Mountain Case as a witness for the State. He was then an employee of Haskins & Sells, the accountants who prepared the formula introduced by the State in that case, and he gave testimony in support thereof. His railroad experience then was the same as it is now, except that since 1912 he has been supervisor of efficiency of the Frisco road. His experience as detailed in his testimony there and as detailed in his testimony here was 17 years of railroad work. The railroads' attack upon his capacity to testify as an expert upon the problems presented in such a formula carried conviction to the learned trial court. After complimenting Mr. Hamilton's ability and candor this statement is made:

> "But the experience of Mr. Hamilton in connection with the management of a railroad, when compared with that of the witnesses introduced for the complainants, is very limited. At the age of 15 he began as a messenger boy for a railroad, and continued in different po-

sitions until 1906, when at the age of 32, he entered the employ of Haskins & Sells, as accountant, and has been in their employ ever since. Their and his employment has always been as accountants for the state, and in opposition to the claims of the carriers. His employment by railroads was always in a subordinate position; his highest position being that of chief clerk to a chief of a division. His duties were practically all of a clerical nature. Since he has been in the employ of Haskins & Sells, he assisted in gathering evidence, and making investigations for the use of the state in the Missouri rate cases, acting under the direction of a superior official of that firm." Re Arkansas Rate Case, 187 Fed. R., 290, on page 332.

The learned counsel for the railroads in that case, who is the same counsel for the railroad here, stated in his brief in this court as follows:

"Mr. Hamilton, as we now recall, was the only man among their accountants who had had any experience in railroad service, and his experience was not such as to qualify him to pass upon the many radical assumptions made in the formulation of their plan." Page 127, Brief of Appellees, Allen vs. St. L., I. M. & S., 230 U. S., 553.

He is now viewed in a different light. In the appellees' brief at page 186 it is stated:

"Counsel refer to Mr. Hamilton as having had railroad experience of an accounting nature only; this misunderstanding has been due to their lack of familiarity with the character of railroad work embraced in the duties attaching to the positions which Mr. Hamilton has filled in his seventeen years' railroad experience. The facts are that he has been engaged in practically every line of railroad work, and for many years was employed in stations, yards, and terminals, where the practical every-day operation of the railroad is carried on. He has been employed, not only in the operating department, but the traffic department and the accounting department as well. His opportunities for observation of every detail of practical operation have been numerous and have covered a long period of time. His intimate knowledge of these subjects is shown by his familiarity with the minutest details of operation, disclosed by the testimony."

These apparently irrelevant matters are called to your attention in order that you may see more clearly the attitude of the railroads, particularly this railroad, in attacking Mr. Mayer. The same is true to a more or less extent in the criticisms of Mr. Simson. No witnesses produced against

them is qualified to pass judgment; only their eminent officials are qualified to speak on these subjects. Counsel throughout his brief most highly extols each of his witnesses. He writes of them as we love to write of our dead friends.

## THE MATHEMATICALLY DEMONSTRATED ERROR OF THE FORMULA.

On pages 134 and 152 of appellees' brief is an attempt to answer the contention that the formula is mathematically demonstrated to be wrong. The argument resolves itself into three propositions.

First: That the railroad exhibit used by the State was made for the purpose of ascertaining the pro rate of interstate revenue to be assigned to Arkansas and not made for the purpose of working out expenses of the entire line.

Second: That the terminal and line costs of Arkansas are greater than on the entire line because of the lesser density of traffic; and,

Third: That the exhibits and testimony of Mr. Hamilton are in error in stating that the terminal and line costs in Arkansas are reflective on the costs of the entire line of railroad.

Taking up these conditions in their order, first, it is true that the exhibit of the railroad used by the State was prepared for the purpose of ascertaining the proper proportion of the interstate revenue to be assigned to Arkansas. It was assumed in the exhibit and frequently so stated in the testimony of Mr. Hamilton and Mr. Nay that the terminal cost per ton of freight or per passenger, state and interstate, was the same and that the line cost per ton mile of freight or per passenger mile state and interstate was the same. It was contended with plausible reason that a mileage pro rate of the interstate revenue was unfair to the interstate because there was at least one terminal expense outside of the state incurred which did not enter into the operating expenses in the state, and that that terminal expense should be compensated for. The method of making that compensation was to work out a mileage equivalent equal to the cost of the terminal without the state. This exhibit stated and Mr. Hamilton testified that the line and terminal cost in Arkansas was fairly reflective of the line and terminal cost in the whole system, and therefore, it was fair to use the line and terminal cost ascertained in Arkansas, applied to the whole system. The appellants had a right to assume the truth of these statements. That

was the extent of their offending in this matter. They accepted these statements for their face value. Mr. Nay first and Mr. Hamilton later stated that if these line and terminal expenses were the same in other states as in Arkansas, that the plan pursued by Mr. Simson would produce the entire operating expenses of the entire system. Therefore, Mr. Simson built up his exhibit upon the testimony of the railroad to ascertain if these line and terminal units were correct. If they were the result would be the operating expenses of the system. The results demonstrated that there were excessive to the extent of about $5,000,000 each year the test was made. This thereby proved conclusively that the formula was wrong if the testimony of the railroads was true. It makes no difference if the railroads built up their exhibits for one purpose and the State used them for another, if it used them correctly. If their statements were true for one purpose, they were true for another purpose. If the railroad was seeking to deal fairly with the state in the apportionment of revenue, it will likewise deal fairly in the use of the same factors, for this other purpose to which they are equally applicable. But these factors prove the formula to be wrong if the evidence is true, and it does not lie in the mouth of the railroad to say its own evidence and assumptions are not true.

Second: It is contended that as there is a less density of traffic in Arkansas, and therefore, the expense in Arkansas is greater than upon the entire line. Calculations are made attempting to prove that the expense of transportation may be measured by the density of traffic. There is no evidence to sustain any such theory. If this theory could be adopted, the difficulty in rate cases would be solved. Merely obtain the density of traffic in any given state, obtain the density of traffic of the line, obtain the relation of one to the other, and you have exactly the expense of the given state; merely ascertain the density of the intrastate traffic, and the interstate traffic, and the problem is worked out. There is no warrant for any such assumption. Density of traffic does to a limited extent affect the cost of operation, but it is shown in the testimony of both Mr. Hamilton and Mr. Simson, which has heretofore been quoted, that that is to a very limited degree. Take the passenger side of the problem first, where the trains run regularly, and the testimony here is that there has been no appreciable change on the passenger service on the Frisco for many years; the expense is the same whether the coaches are filled, half filled, or carried empty. The same is true in a lesser degree on the freight side, the local freights and many of the through freights, as

explained by Mr. Frates, run on schedule whether they are loaded, or half loaded or not loaded at all. On the through freight trains the density of traffic does have an appreciable effect upon the expense, because these trains are not usually run until reasonably well loaded, but Exhibit "CC" of Mr. Mayer demonstrates that even through trains are run with a variation of from 40 to 90-odd per cent of the rating of the engine. There is great fluctuation shown in the statistics quoted as to the density of traffic between 1907 and 1913, in Arkansas, as compared with the entire system, and yet Mr. Simson's exhibits show relatively the same amount of excess cost in the years where the density was greater as in the years where the density was lighter. This is but a weak effort to overcome an error which is destructive of the Formula.

Third: There is also an effort made to show that the exhibits and testimony of Mr. Hamilton in stating that the line and terminal expenses in Arkansas are reflective on the expenses of the line and terminal of the entire system is error. At page 147 it is attempted to explain his testimony, which was quoted in the appellants' brief, by stating that the two big stations referred to by him in St. Louis were where all the freight in less than carload lots was handled. The testimony on that subject is here quoted verbatim:

"As an illustration, I have made a little research since the last hearing. We thought there was some inequality in this outside cost, and it was assuming too much when compared relatively with the big terminals. I was pleased to find that at St. Louis our two big stations, the Broadway station and our own station at Seventh and Cerre Streets, our cost per ton for handling freight has run between 36 cents and 39 cents for years; and that is pretty close to this Arkansas average. That strengthened my opinion that this is a fair equation, this comparison of terminal cost here in the state as a whole with such terminal cost outside. I took that up just to satisfy myself how relatively correct that was.

Q. How about less-than-carload?

A. That is in there, ton for ton.

Q. You disregard the fact that part of this freight moves less-than-carload?

A. Oh, yes.

Q. And treat it all as ton for ton?

A. Carload and less-than-carload, yes.

Q. It is a recognized fact that the less-than-carload costs much more than the carload?

A. That is true.

MR. MOORE: The haulage cost?

A. We are speaking of terminal cost, Mr. Moore.

"We recognize that fact, but it was a physical impossibility to keep the terminal cost of every carriage that comes in here separately as between carload and less-than-carload. This applies to the pro rate of interstate revenue and not at all to intrastate.

"Now, on the passenger side—

"MR. HILL: Wait a moment, before you get to that.

"The throwing in of the less-than-carload with the carload will necessarily make the average cost higher on the carload than it would be if they were kept separate?

A. Yes, sir; you would add some burden to it. You couldn't help but do that. Now, on the passenger side, the same plan was followed except we substituted 'passenger' for 'ton,' and passenger mile instead of ton mile. Shall I go into that in detail, Judge Hill?

A. It is the same thing?

A. It is the same principle, exactly." (R. page 261.)

It is thus seen that carload and less-than-carload freight in both instances are computed. Certainly there is more density of traffic in St. Louis than in Arkansas, yet the terminal cost there is from 36 to 39 cents per ton. When Mr. Hamilton gave his testimony, he then thought the terminal cost was 36 cents per ton, and later admitted the error, and that the correct amount under the workings of the Formula was 31 cents. Therefore, in a great city, and in a large terminal where the traffic is probably more dense than anywhere on the Frisco line, the terminal cost is from 5 to 8 cents per ton greater than in Arkansas, and yet it is seriously argued that because the percentage of density of traffic is less than the entire system that the terminal costs in the state are more. Be that as it may, the state accepted as true the railroad's own exhibit and the railroad's testimony, and on the truth of that the formula is destroyed. An estoppel against controverting its Formula and repudiating its testimony is invoked.

## APPELLANTS' EXHIBIT "Y."

On pages 160 and 162 is a discussion of appellants' Exhibit "Y." The statement is made that Mr. Simson had stated that Exhibit "O" (afterwards changed to "O-1"), reflected the facts which the appellants desired to stand upon in this case. It is further stated that when Mr. Simson stood on Exhibit "O" he discarded the remaining exhibits, including "Y," and that they should be disregarded and dismissed

from consideration by the court. This is not a correct statement of Mr. Simson's position. He introduced many exhibits showing the condition of affairs on the road in the different periods and from different viewpoints, and explained carefully the plan of each exhibit, and the point made by it. Mr. Simson was asked which of his exhibits properly represented the return upon the railroad property, and he answered: "I think the logical one is the average return based upon the old formula, which I think is Exhibit "O," if I remember it rightly." (R. page 641.) Mr. Simson's theory was exactly correct, which was that Exhibit "Y" did not show an average condition, it correctly showed the actual condition during the four months' period and in his opinion the logical position was to consider the return from a period averaged instead of an abnormal period. There has been no discarding Exhibit "Y." Its purpose is useful. It is the same as Exhibit "27A" of the railroad, except that it makes the correction of errors, (counsel objects to the term of "errors" in referring to these corrections, and says that they are only differences of bases. It is not important, which term is used), and shows the actual condition of affairs of the road in the four months of 1907, before the averaging process is applied thereto. When the averaging process is applied, which is proper, in order to obtain a normal period, the result is shown in Exhibit "O," and which result as Mr. Simson properly stated, is the logical one to rest upon.

## THE INTRASTATE RETURNS.

There are many statements throughout the brief that this error or method does not affect the returns on intrastate property. There are many statements that no effort was made by the state to separate the state and interstate traffic. Whenever a palpable error was discovered the railroad seemed to at once think it could be minimized by showing how little that particular error affected the intrastate traffic. The position of the state was simply this: The evidence showed that the railroad upon the whole business in Arkansas was earning a compensatory return on its property invested therein. This is shown even after applying the diminution tables to later years. Certainly there is no confiscation as to the whole business in the state. No testimony was offered by the railroads to ascertain the extra cost of the state over the interstate, if any, other than the results worked out through the formula; and the state has contended throughout that no reliable results are

worked out through it. It is palpably and glaringly wrong and mathematically demonstrated to be unsound and rests upon speculative opinions for every material factor therein. Therefore, when counsel argues and the witnesses contend that this or that matter does not affect the intrastate, except in a small degree, they are assuming that the extra cost of 15.43 per cent passenger and 319.58 per cent freight is inhering to the intrastate; and when calculations are made as to the effect of the particular error and these extra cost percentages are applied to intrastate, the effect of the error is minimized. If these calculations were made correcting these errors without carrying these grotesque extra cost percentages, the results worked out would be radically different. There is sufficient evidence in this record which has been referred in the briefs to justify this broad statement: If the interstate is properly charged with what it should be charged with and the intrastate only charged with what it is justly due, then the net result of the two classes of traffic will be in favor of the intrastate. Counsel criticise the use made of the cost and revenue factors in the appellants' argument, but it is necessary in order to obtain the net result to find the cost on the one hand and the revenue on the other. The extra terminal does impose an additional expense upon the state, but there is much extra expense incurred by the interstate, such—as on the passenger side—riding in Pullmans, using diners, observation cars and baggage cars, using better equipment and the speedier trains, as pointed out by the Interstate Commerce Commission—and on the freight side—there are many things, like charging the use of division yards to the intrastate where it is not their just burden, and many other matters heretofore referred to. Where the revenue on the freight side is more than three times intrastate over what it is interstate, and materially more on the passenger side intrastate over interstate, no other conclusion can be drawn, but that the net result is that the intrastate is the more profitable of the two classes. Certainly the traffic as a whole is producing for the period of inquiry and of all the later periods more than a compensatory return.

## ALLEGED ERRORS IN APPELLANTS' BRIEF.

It is argued at page 175 that because the local train carries 85 per cent interstate and only 15 per cent state that such fact does not prove that the interstate does not bear the heavier expense of freight traffic. An argument is made that the larger per cent of the interstate moves on the cheaper through train, while the larger per

cent of the intrastate moves on the more expensive local train, and that the general result is that the interstate is less expensive than the intrastate. Calculations are made, but none of them are carried to the point of demonstrating this fact. They fall short of it. In fact, it is probable that the data is not in the record to bring them to a conclusion. The statement criticised was an answer to the court's opinion that the intrastate was more expensive on account of the local trains, and attention was called to the fact that out of every dollar of the expense of that train 85 cents must be borne by the interstate, which would naturally work out a greater burden against the interstate than against the intrastate traffic on account of the expensiveness of that service.

The illustration of the error of $1000.00 in $100,000.00 expenses is criticised as an assumption of operating expenses out of proportion to the property of the road. It was not assumed for a moment that the operating expenses of a railroad worth $16,000,000 were only $100,000 a year. These figures were taken for the purpose of easy calculation to demonstrate the point under discussion. The point made was that an error in the apportionment between freight and passenger would make a difference in the result between state and interstate. The illustration is perfectly true to demonstrate the point of it. No one cares what the figures are, because it was not taken as a demonstration of what the errors were in this case, but merely the effect of error in the assignment between freight and passenger. This illustration was thought to be necessary as it appears from the record that the trial court thought it immaterial as to the assignment between freight and passenger, as the result of the two classes of traffic was what was to be looked to finally (R. 94-95, 203). Therefore to make clear the argument that the mistake of the engine ton mile basis for assigning, between freight and passenger seriously affected the assignment between state and interstate, this illustration was made.

Respectfully submitted,

JOSEPH M. HILL,

Special Counsel for the State.

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IN THE

# Supreme Court of the United States

J. SAM ROWLAND, WILLIAM F. McKNIGHT, AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS, APPELLANTS,

v. No. 648.

SIDNEY E. BOYLE, AS ADMINISTRATOR OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND THE ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY.

## BRIEF FOR APPELLEES.

JOHN M. MOORE,
*Attorney for Appellees.*

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SIDNEY E. BOYLE, AS ADMINISTRATOR OF THE ESTATE OF WILBUR F. BOYLE, DECEASED, AND THE ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY.

## BRIEF FOR APPELLEES.

This suit was brought by a stockholder of the St. Louis & San Francisco Railroad Company against that company, the Railroad Commission of Arkansas and two citizens of the State, representing passengers and shippers on the railroad. The plaintiff sought to enjoin the passenger rate of two cents per mile prescribed by a statute of the State passed on February 9, 1907, and the tariff of freight rates promulgated by the State Railroad Commission on June 4, 1908, on the alleged ground that both classes of rates were inadequate and confiscatory. A temporary injunction was granted at the beginning of the suit and a final decree was rendered perpetually enjoining the enforcement of the statutory passenger rates and the Commission tariff of freight rates on the 9th day of April, 1915, from which decree this appeal was prayed.

## THE ISSUE.

Counsel assume that the issue in this case is whether the earnings were compensatory when the preliminary injunction was granted, in support of which they cite a statement of the court in Wilcox v. Consolidated Gas Co., 212 U. S. 52, that this court concurs with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding the rates. The question before the court below in the case cited was whether the value of realty should be assigned as of the time of the inquiry, or on the basis of the cost of the property to the complainant, many years before. The investigation for the purpose of determining the reasonableness of the rates relates rather to the future than to the past, and should not be based on one period alone when a broader field of inquiry is open. Many of the cases of this kind are brought before the rates complained of are put into effect, and are tested either by the application of the new rate to prior business or to the future business. The bill was filed in July, 1908; the application for temporary injunction was heard and the injunction granted on September 3, 1908. The proofs filed at the preliminary hearing, in support of the application, covered the months of September, October, November and December, 1907. The evidence used on the final hearing was taken in 1914 and covered four years of the intermediate period as well as the four months in 1907. This was deemed to be not only proper, but essential to a fair and satisfactory showing of the effect of the rates complained of. If it had been shown in this case that the rates did not yield an adequate return for the four months in 1907, but did in the succeeding four years produce a reasonable return, the relief

would unquestionably have been denied. If, on the other hand, it should turn out that the rates yielded a reasonable return during the four months period, but that during the succeeding four years the return was confiscatory, the rates could not be held to be reasonable.

But counsel say in that case the finding of the court below that the rates were confiscatory should be reversed, the case dismissed and liability on the injunction bond enforced for overcharges during the time the injunction was in force, on the ground that it was improperly issued, notwithstanding the court had correctly found that the rates were illegal and could not be enforced.

In the case of Knoxville v. Water Company, 212 U. S. 1, 14, suit was brought on December 7, 1901. The court, referring to the fact that the decision of the court below was based solely on the operations of the fiscal year ending March 31, 1901, held it was error to confine the investigation to, and base the judgment upon, that year alone.

"The precise subject of inquiry was, what would be the effect of the ordinance in the future? The operations of the preceding fiscal year, or of any other past fiscal year, were valueless if the year was abnormal, and were only of significance so far as they foretold the future. * * * The evidence of the operations of the years succeeding to the ordinance is relevant and of great importance, and by a consideration of such evidence a much greater degree of certainty could be obtained. * * * We are unable to say what the effect of the evidence excluded would be; all we can say is, that the inquiry was unduly limited by the exclusion of the evidence of the operations of subsequent years."

## AN OUTLINE OF THE METHODS PURSUED BY THE APPELLEE, RAILROAD COMPANY, IN DIVIDING COMMON EXPENSES BETWEEN INTRASTATE AND INTERSTATE TRAFFIC, AND IN MAKING A TEST FOR THE PURPOSE OF DETERMINING THE RELATIVE COST OF THE TWO CLASSES OF TRAFFIC.

In view of the great importance of this case to the parties to the proceedings, as well as the public, and the fact that an effort has been made to determine the expense of conducting intrastate traffic by a method that has not heretofore been used, *i. e.*, with reference to the use made of the property and facilities, rather than on the basis of gross revenue or other factors heretofore relied on, it is proper that we should make some explanation of the method used for that purpose.

The St. Louis & San Francisco Railroad is operated in other States besides Arkansas, and it was necessary to ascertain, as a first step, what portion of its total revenues should be credited as intrastate earnings within that State, and what portion of its operating expenses, taxes, rentals and other like expenses, should be charged to the conduct of intrastate freight and passenger business within the State. The earnings accruing upon the intrastate traffic of the railroad were then to be separated as between the freight and passenger branches of the service, and the same segregation made in regard to the operating expenses. The assignment to the State of the gross revenue on intrastate business was not difficult. The instrumentalities through which the railroad collects its gross revenues, and the records from which the revenues are tabu-

lated in its books and accounts lend themselves readily to such an assignment. Operating expenses, and kindred charges against operating revenues, which are incurred wholly within the State, can be definitely allocated by the ordinary records of the company, or by means of special investigation. Those which are incurred jointly in two or more States must necessarily be assigned between those States on some basis of *pro rate,* and after their allocation to the State must be subdivided between the various classes of traffic, viz., freight, passenger, intrastate, interstate and mail and express, etc., within the State. The question then becomes one of the basis upon which these assignments of operating expenses, and charges incident thereto, shall be made, first, to the State, and, second, as between the various classes of traffic conducted by the railroad within the State. It is also necessary to apportion the value of the property used in transportation among the various classes of traffic to the use of which it is devoted in order that an assignment of value may be made in accordance with the use made of the property.

This suit was pending at the time the opinions were handed down in the Minnesota and Arkansas rate cases, 230 U. S. 352, 553. Very soon after those cases were disposed of the plaintiff's representatives, in conjunction with the representatives of other railroads operating a large mileage in the Western and Southwestern States, held a conference for the purpose of endeavoring to devise a formula for the assignment of operating expenses and property values in accordance with the suggestions contained in the opinions in those cases. Many of the ablest railroad officials from the executive, operating, accounting, statistical and legal departments of the

various roads participated in this work, and devoted much time and care to the preparation of a formula under which the various assignments could be made on the basis of the use of the property and the facilities employed in transportation, in the several classes of traffic. This formula sets forth in detail the results of the deliberations and judgment of the committee by which it was formulated as to the proper method of apportioning such expense incident to the transportation of freight and passengers as is common to different classes of traffic, on the basis of the use made of the property in the various branches of the business. The accounts are subdivided and the factors applied in accordance with the Interstate Commerce Commission classification of railroad accounts. The formula was exhibited in evidence by the appellees as exhibit 1. The *personnel* of the committee, and the railroads represented by the members, appear on the inside of the first sheet. The members of the committee were men of wide experience in all branches of railroad service and of undoubted qualification. The minute detail with which every phase of the problem is treated is an assurance of the careful consideration given by them to the subject, and the spirit in which they acted is illustrated by the following extracts from the testimony of Mr. F. Nay, comptroller of the Rock Island lines, a man of great experience and unquestioned integrity:

"This formula was prepared with the utmost care for the purpose of making an accurate separation of the operating expenses among the different classes of service, with the ultimate view of getting as accurate a division as possible between State and interstate, freight and passenger expenses, without regard to what the final result was going to be. * * *"

"We attempted to make a separation just as accurately as possible, having in mind the use made of the property by the different classes of traffic. * * *"

"We did not know, and could not know, when we were working up these statistics, where they would land us. We did make an honest effort to get at the facts as near as possible, letting the result be what it would." (Rec. 292, 293 and 320, 321.)

The general scope or outline of the plan is described on pages 3 to 5 of the formula. Certain modifications in the application of some parts of the formula were adopted by the appellees in the preparation of the exhibits in this case, for the purpose of adapting them to local conditions on appellees' railroad. These modifications were in no instance departures from the principle of the printed text. They are set forth on buff-colored sheets interlined in Exhibit 1, which contain the same page number, followed by a letter of the alphabet, and with the subheadings which appear upon the original text for the purpose of identifying the modifications with the text. Full explanations as to the scope and administration of the plan, and definitions of the technical terms used will be found on pages 2, 3, 4 and 5 of the formula. The captions of the various accounts are descriptive of the character of revenue credited and expenses charged to each. The numbers appearing opposite the captions in each account of the formula are those prescribed in the Interstate Commerce Commission's classification of accounts. Additional explanations of the contents of the revenue accounts are set forth in detail in appellees' Exhibit No. 4, which supplements the description of the apportionment of revenues to the State to freight and passenger service, and to intrastate and interstate, mail and express traffic, set forth on pages 6,

6-A, 6-B, 6-C, 7-A, 7-B, 7-C and 7-D of the formula, and explains in minute detail the processes followed in making the assignment of revenues, the underlying principle being a direct allocation wherever possible. This is illustrated by the following extracts from Exhibit 4:

"Intrastate freight revenue earned in Arkansas as set forth in Exhibit No. 22 was taken from the records compiled by the railroad in the ordinary keeping of its accounts, with this exception, that while the railroad in preparing the intrastate revenue figures formerly reported to the State Railroad Commission made an arbitrary adjustment of its gross intrastate revenue in Arkansas on account of undercharge collections, overcharge payments, switching absorptions and kindred items, in preparing the figures shown as intrastate freight revenue in Exhibit No. 22 filed in this case, covering the year ended June 30, 1913, all such adjustments were analyzed and actually applied against the gross earnings covering the actual road haul to which they attached. * * *"

"Intrastate and interstate (the latter including transstate) passenger revenues set up in Exhibits Nos. 22, 24, 25, 26, 27, covering the years ended June 30, 1913, 1912, 1911 and 1910, and the four months ended December 31, 1907, were assigned to Arkansas on the same basis as hereinbefore described for the assignment of freight revenues, with the exception that the adjustments of overcharges, undercharges, etc., were so small in amount (being about one-tenth of one per cent of total gross passenger revenues assignable to Arkansas in the year ended June 30, 1913), that their analysis in detail was considered immaterial, and adjustment was made in a lump sum against the ascertained interstate revenue assignable to that State."

The same is true in regard to operating expenses. All that could be definitely located in the State were assigned thereto; all other expense was assigned on the most closely related use basis that could be found.

The next step was to divide the operating expenses allocated or assigned to the State between freight and passenger,

intrastate and interstate, mail and express. As a first step in that direction, the operating expenses properly chargeable to the State have been segregated into two classes, viz, "line" expense and "terminal" expense. The formula at page 3 describes the "terminal" expenses as such as are incurred in originating, terminating and handling traffic at stations, and to and from trains on which it is transported, including the reception and delivery of traffic interchanged with foreign lines. It describes "line" expenses as such as are necessary to, and are incurred exclusively, or substantially exclusively, in the hauling of traffic through or within the State.

In further explanation of the meaning of the terms "line" and "terminal" as used in the formula, we quote the following statement from the testimony of Mr. T. A. Hamilton, under whose supervision the data upon which the exhibits were made up was prepared and who was a member of the committee that prepared the formula. He says:

"Terminal expense, in the ordinary acceptance of the term, conveys to most people, and to most railroad men, for that matter, the end of the trains' run; in this formula it does not mean any such thing, except perhaps by accident. By 'terminal expense' is meant the expense of originating and delivering the freight; that is, receiving it from the shipper and delivering it to the consignee, and all of the collateral expenses that go with that. Perhaps they might better have been called 'non-haulage' expense, and 'line' expense." (Rec. 74.)

And the following extract from the testimony of Mr. F. Nay, a member of the committee that prepared the formula:

"The terminal expenses were those incurred in connection with originating the traffic and loading it, making the waybills, and doing all of the work that is necessary to get the traffic on to the train at its originating points; and after

it reached destination to unload it and make freight bills, collect the money, and all of the work that was necessary to the handling of the freight after it reached destination.

"The line expenses were those in connection with the hauling of the freight or the passengers—the traffic, whatever it might be, after it was ready for shipment until it got to destination to be delivered. * * *"

"The line expense is all of the expense necessary to the actual movement of the traffic after it is ready to be moved until it reaches destination and is ready for delivery. And by destination or point of origin here, I have reference to the movement over the carrier's own line. That is to say, if any railroad—say railroad A receives a shipment from railroad B, at any station, it is considered in A's account as originating at that station just the same as if the shipment had been received from a shipper at that point.

"That same theory prevails at destination, where a delivery may be made to a connecting carrier.

"Of course, there were some expenses, like 'general' expenses, which are not in direct relation to either terminal or line expense, but they were apportioned between the line and terminal in accordance with the provisions of the formula" (Rec. 294.)

The division between line and terminal expense is largely the basis of the entire plan of apportionment contained in the formula used in this case. Notwithstanding the fact that the line and terminal service is the most natural and obvious line of primary or fundamental division of operating expenses as between the different classes of traffic, it has never been used as an underlying factor in any division heretofore attempted, so far as we are advised. The nearest approach to it was the plan followed by the State in the Arkansas rate case (Allen *et al.* v. St. Louis, I. M. & S. Ry. Co., 230 U. S. 553); but in that case the prime factor of division was the local and through trains, while under the

present formula the plan starts with the assignment of the expenses to the State, and then the division between line and terminal and freight and passenger service, at which point, in making the division of the expense incurred in transportation of intrastate and interstate freight, the division between local and through trains begins, as will be seen later on. Through a test made in the months of November and December, 1913, in complying with the provisions of the formula, definite information was obtained in regard to a matter which has given rise heretofore to much opinion and speculative evidence in regard to the increased expense of transporting intrastate over interstate traffic, growing out of the long and short haul incident to the two classes of traffic. It is universally recognized among railroad operators that short haul traffic is more expensive; that every ton of freight and every passenger transported must receive two terminal services on each haul or journey, and therefore the shorter the haul or journey the less the mileage over which the cost of the two terminal services can be spread. Recognizing that the terminal service constitutes an element of cost of a totally different nature from the line or haulage service, an attempt was made by the committee to find a plan by which the expense of the two classes of service could be segregated, so that the terminal service cost might not be made to absorb burdens which it is proper to place upon the line or haulage cost, resulting in a failure to charge to the short haul traffic its proper proportion of the terminal cost. This was one of the causes that induced the committee to use the line and terminal divisions. In litigation of this character there has heretofore been great difficulty in determining the relative expense incident to intra-

state and interstate traffic growing out of the long and short haul, and in the Arkansas rate case referred to, the State attempted to obviate this difficulty by segregating the cost of terminal service from other costs by setting aside as terminal cost the "station and yard" expenses in their entirety, and charging to the haulage, or what in the formula used in this case is called "line service," all the other transportation expenses. But they did not in this separation go beyond the Interstate Commerce group of "transportation expenses." Under the formula we are presenting here, and in the exhibits offered in evidence in this case, this essential separation of line and terminal service costs has been made in the minutest detail, not only in the transportation expenses, but throughout every item of the maintenance-of-way and maintenance-of-equipment expenses also; and this segregation has been made direct, according to the use of the railroad property, plant and facilities in the line and terminal services, taking careful account of the line and terminal functions performed in each individual instance, so that expenses have been divided between line and terminal cost in accordance with the use of the property in which the expense was incurred. The evidence sets forth in detail, and the exhibits explain, how this division of line and terminal expenses upon the use basis was made, right on the ground where the line and terminal service was performed, and the expense thereof incurred.

We thought it well to go into the division of expenses between line and terminal service at this point, and will show further along, in connection with the exhibits and evidence,

by what processes, and in what careful and minute detail, this most important division of expenses has been effected. The object has been, in separating the expenses, to consider the traffic according to its use of the track, equipment, facilities and everything that is employed in the transportation of freight and passengers, and to ascertain to what extent these facilities are used in carrying on the different classes of traffic.

The manner in which this division was made is set out in detail in Exhibit No. 1, on pages 12 to 16, inclusive, under the heading of "Apportionment of Expenses Between Line and Terminal by Primary Accounts," and the subdivisions thereof. It was necessary in complying with the provisions of the formula to collect certain data to be used in making the division of expenses. Some of this data was already contained in the company's regular records kept in the ordinary conduct of its business, but the larger part of it could only be secured by a test in connection with the current operation of the railroad. A special test was made, embracing the months of November and December, 1913, and covering every phase of operation connected in any way with the divisions sought to be made. The method pursued in making the test is described in Exhibit 2, which is printed as an appendix at the end of the brief for the convenience of the court. The forms prepared for recording the facts obtained, and used in separating the traffic between line and terminal, freight and passenger, and in some instances intrastate and interstate, will be found in Exhibits No. 2-A to 2-K. The descriptions contained in Exhibit 2 will inform the court as to the basis and methods of making the divisions between line and terminal, freight and passenger, intrastate and interstate insofar as the same de-

pend upon the test, and Exhibit 3, which is also printed in the appendix at the end of the brief, will afford such information as depend on the current records of the company.

The line and terminal expenses having been separated and divided between freight and passenger service (in some instances the divisions between line and terminal, freight and passenger, was the result of one combined analysis or study; in others separate divisions were first made between line and terminal, and, subsequently, of the line and terminal expenses separately between freight and passenger service) the expense of the mail and express business was segregated from the total of the passenger business, both line and terminal, within the State. The segregation of the mail and express expense was made on the basis of the "car foot" miles which is described in Exhibit 3 (appendix), pages 212-213.

The residue of the passenger expenses, after exclusion of the mail and express proportion, were divided as follows: The terminal passenger expenses were divided between intrastate and interstate in proportion to the number of passengers of each class actually using terminal facilities or benefiting by terminal service rendered. The line passenger expenses were first divided between coach or ordinary passenger carrying car service, Pullman car service, and auxiliary passenger train car service. By auxiliary passenger train car service is meant the baggage and dining car service. This division between the coach, pullman and auxiliary car service was made on the basis of the car foot miles of each class. It will suffice to say here briefly that the car foot mile division is upon the basis of the lineal feet of space devoted in passenger trains to each class of service, and the charges made to

each class of service on the basis of the number of miles such car service was actually hauled in passenger trains. This is an eminently fair division of passenger line, or haulage, expenses. The entire passenger line or haulage expense incurred by the railroad necessarily culminates in the operation of the passenger trains, and it is undoubtedly fair to divide this expense between the various services—coach, pullman and auxiliary—in proportion to the amount of space used by or assigned to each service in the passenger train, multiplied by the miles such space was hauled in the train. The line passenger expenses, after their assignment to coach, pullman and auxiliary car service, were subdivided between intrastate and interstate in the following manner: The coach proportion was charged to intrastate and interstate respectively in proportion to the number of passengers carried one mile of each class in coaches. The pullman proportion was divided between the intrastate and interstate on the basis of the number of passengers of each class carried one mile in pullman cars. The auxiliary car proportion was divided between intrastate and interstate on the basis of the total number of passengers of both classes carried one mile in passenger trains, combining the coach and pullman passengers, because the auxiliary cars serve both alike.

The freight terminal expenses were divided between the intrastate and interstate in minute detail, thus, after the expense actually incurred in connection with each class of terminal service had been ascertained, it was divided between intrastate and interstate in proportion to the number of consignments, and tons or cars of intrastate and interstate

freight, respectively, using terminal facilities, or benefiting by the various classes of freight terminal service. The line or haulage freight expenses were apportioned first among local and through freight trains and mixed trains. The expenses attaching to the mixed trains were divided first between freight and passenger services in which the train was employed on the basis of the gross ton miles of passenger and freight equipment and contents, respectively. These divisions are explained on page 28-A of Exhibit No. 1.

The passenger proportion of the mixed train expenses was included with the straight passenger train expenses and divided in the manner above described. The freight proportion of mixed train expenses was included with the expenses assigned to local freight trains for the reason that the mixed train performs all of the functions of the local train and is simply a local freight train with passenger equipment attached.

The local freight train expenses were divided between the intrastate and interstate freight upon the basis of the number of tons one mile of each class of freight carried on such trains.

The through freight train expenses were divided between intrastate and interstate on the basis of the number of tons one mile of each class carried on such trains. Some expenses in both the freight and passenger groups have been definitely assigned direct to intrastate and interstate, such as "loss and damage freight," "loss and damage baggage," etc.

## TRAFFIC EXPENSES.

Traffic expenses, freight and passenger separately, were not included in their ultimate division between intrastate and interstate either as terminal expenses or line expenses, but were divided directly between intrastate and interstate on the basis of the volume of traffic; that is, upon the passengers one mile and tons one mile in each class, respectively.

As a matter of convenience, these expenses were shown in the terminal column of Exhibits Nos. 8 and 9. They were not charged as terminal service in any way, nor divided on the number of tons or passengers or other terminal units. Mr. T. A. Hamilton was questioned about this at some length and testified:

"We had an expense, a traffic expense, which, strictly speaking, was neither haulage nor nonhaulage. For convenience in preparing these exhibits, we noted them down on the terminal sheet. It is not incurred at the station, by the station agent, or by his force; if it is, it is not chargeable there under the Interstate Commerce rules. It is the traffic solicitor, general freight office and general passenger office, and has nothing to do with the station service. They are employed to secure traffic, and we measured their efficiency, or, perhaps, I should say, the benefits the traffic derived, State and interstate, from the expenditure of that money, on the basis of the traffic they got, the net ton mile, State and interstate. Traffic expenses has absolutely nothing to do with station service. We had to put it somewhere until we could dispose of it between State and interstate, and we put it on the terminal sheet," (R. 189, 190), and at pages 190 and 191 he testified that this expense was divided on ton miles and passenger miles. (R. 190, 191.)

The formula under which this assignment was made provides that all traffic accounts shall be divided between State and interstate on the basis of net ton miles and passenger

miles (Exhibit 1, pages 32-35, subhead "Traffic Expenses"). In dividing expenses of this character incurred jointly for the freight and passenger services, appellees followed the rule prescribed by the Interstate Commerce Commission in its classification of operating expenses, which provides under Account 53, that the pay of such joint traffic officers, and their office and other expenses shall be apportioned equally between the departments over which they have jurisdiction.

GENERAL EXPENSES.

General expenses, in accordance with the well established cost accounting practice, was divided as an overhead expense in proportion to the distribution of all other expenses.

NONREVENUE FREIGHT AND PASSENGERS.

The cost of line and terminal service respectively performed in the transportation of company, or nonrevenue freight and passengers, was distributed over the revenue service in proportion to the direct cost of the different classes of service in the manner prescribed in the formula, Exhibit No. 1, page 37. See Exhibits 10 and 11, *infra*.

The foregoing pages contain an outline of the plan of division followed, reaching ultimately to the apportionment of the expenses chargeable to the business as between the freight and passenger, intrastate and interstate, and mail and express traffic as developed in the test covering the months of November and December, 1913.

The object in making the test was to effect a division of the expense among the different classes of service with reference to the use made of the property and facilities in such service, thereby establishing the cost relation between intrastate

and interstate traffic, freight and passenger separately, as well as to ascertain the extra cost of conducting intrastate traffic, and of what it consisted.

All the exhibits, from 2 to 17, inclusive, refer to and are based on the two months' test, one of the main objects of which was to establish by actual facts, rather than by opinion evidence, the excess or extra cost of intrastate traffic, both freight and passenger, over interstate. The extra cost developed by the test was applied to the business of the year 1913, to which attention will be directed later. We will now call attention to these exhibits in their proper order. Exhibits 2, 2-A to 2-K, 3 and 4 have been explained.

## EXHIBIT 5.

Exhibit 5 describes the method of assignment to the State, and apportionment between the different classes of traffic within the State, of taxes, rentals and hire of equipment.

TAXES—The apportionment of State, county and municipal taxes between freight and passenger, intrastate, interstate, mail and express follows the division of the valuation of the property prescribed in the formula at pages 38, 38-A, 39 and 39-A as applied on page 8 of Exhibit No. 18. The Federal income tax was assigned to Arkansas in Exhibit No. 19 on the basis of the relation of the net earnings in the State to similar net earnings of the entire system in all the States. The proportion assigned to Arkansas was divided between freight and passenger, intrastate, interstate, mail and express on the basis of the net earnings of each class as shown in Exhibit No. 22. These assignments of State and Federal taxes are also contained in Exhibit No. 19. It is hardly necessary to state that

property taxes follow the value of the property, and the income tax the earnings, because of the direct relation of property taxes to property values, and of income taxes to net earnings.

RENTALS AND HIRE OF EQUIPMENT—The manner of apportioning these items is explained fully in Exhibit 5, beginning on page 1 and continuing to page 4. Inasmuch as there was no controversy over these assignments, it is not necessary to deal with them in detail. It is sufficient to say that the division was made wherever possible on the basis of the actual use made of the rented property or facility, and, in regard to hire of equipment, that an analysis of the charges and credits to that account was made up from original vouchers, and the records underlying such bills and vouchers, for the purpose of segregating the charges and credits as between locomotives, passenger cars and other equipment. After the net amount of debit or credit was ascertained for each class of equipment, an assignment to the State was made on the basis of the mileage made by the respective classes of equipment in the State as compared with the mileage of the same class upon the entire road. Much of this item is assigned automatically as between freight and passenger service by reference to the class of the equipment.

## EXHIBIT 6.

This is a table of sundry transportation, and other statistics, used as bases for factors applied in various divisions of earnings, expenses, etc., and contains in tabular form the results of the tests and investigations recorded in Exhibits 2,

2-A to 2-K and 3. It affords a ready reference to ascertain the percentage relation of the various factors brought together in the test, and applied in working out the results.

## EXHIBIT 7.

This exhibit contains a statement of the amount of each class of expense incurred on the entire railroad during the test period, and the amount thereof assigned to Arkansas, under the formula. The mileage of the system and of the State, respectively, is shown on the exhibit, and it appears that about 12½ per cent of the mileage of the system is in Arkansas and 10½ per cent of the total expenses during the test period was charged to that State.

## EXHIBIT 8.

Exhibit 8 divides the expense assigned to the State, and carried over from Exhibit 7, between line and terminal service. In the first column, opposite each item or account, there is a reference to the page of the formula (Exhibit 1) under which the division was made.

## EXHIBIT 9.

Exhibit 9 contains a division of the line and terminal expense in the State, under the division made in, and brought forward from Exhibit 8, between freight and passenger service. This exhibit contains a similar reference to the pages of the formula under which the divisions were made, and the two exhibits (8 and 9) are based on the special investigations made and the records kept by agents, train men and yard men

as shown and described in Exhibits 2 and 2-A to 2-K, and the evidence introduced as to the proper division of locomotive and car repairs between line and terminal, to which we will hereafter refer.

The following testimony of the witness, T. A. Hamilton, as to the manner in which the information was obtained and the data collected, from which the division of the maintenance-of-way expenses between line and terminal and freight and passenger service was made in the test period, we think will be of interest, as it illustrates the method pursued with reference to all other divisions, and the means employed to obtain detailed and accurate information in regard to the extent to which the property and facilities, in the maintenance and operation of which the expense was incurred, were used in the various branches or classes of service to which it was devoted:

Mr. Hamilton testified:

"It is first necessary to determine the proportion of maintenance of way expense which was chargeable to line service and to terminal service, that is, the portions of expense incurred in keeping up track and structures and appurtenances which were used by the line service, and which were used by the terminal service. To do that we had to get very close to the ground. In the months of November and December, 1913, we had our section foreman keep an actual account of the entire labor and material expenditures. It was done in this way: We went out on the line, sat down with each section foreman, took his time and material books (of which he renders one each month to the superintendent, who in turn reports to the auditor) and classified each track over which each individual section foreman had charge according to its use as a line track or a terminal track, or common to line and terminal. If it was used exclusively for freight terminal service, we marked it as a freight terminal track. If it was used exclusively for line service, we marked it as a line track, and all our straight line tracks are common to freight and passenger. We had him then enter on each track section,

(five or six miles) each day, a division of his labor and that of the men employed under him, and material used, as between these classes of tracks. His time and material books were fitted to the tracks which he had in his charge. In other words, we made a hole for him to put his figures into and numbered the tracks. If he worked on track 1 he charged track 1. We classified track 1 when we got his book, as a line track, or terminal, or freight, or passenger. We accumulated in that way the actual maintenance of way expenses for these two months. It is subdivided between freight and passenger tracks and line and terminal tracks. That also extends to the buildings, crossings and other matters that the section foreman keeps up.

"As to the bridges, buildings, and similar structures, we maintain regularly what we call structure reports, in which the charges for repairs or maintenance of each building, each individual building, or each individual bridge structure, are kept separately. That is a part of our regular accounting scheme. We had, then, without extra effort the cost of repairs of individual buildings, bridges and trestles. It only remained to classify those according to their use as between line, terminal and freight and passenger. That was the basis of our line and terminal, freight and passenger division, of maintenance of way expenses.

"*The Court*: Q. Then you apportioned the expense of maintenance of right-of-way and structures according to the use?

"A. The ordinary use, Your Honor, for which the track or structure was provided by the company.

"Q. If there was a wash-out, or if the platform rotted and had to be replaced, then it was apportioned according to the use by the different trains?

"A. Yes, sir; if it was a freight platform it was charged to the freight terminal." (R. 107, 108.)

The same care that was exercised for the purpose of obtaining exact and detailed information upon which to base a division of maintenance of way expenses was exercised in

every other branch and department of the service, as will be seen by reference to the description of the methods employed, contained in Exhibit No. 2, and the forms upon which reports were required to be made by station agents, yard foremen, conductors and trainmen, including extra men placed on trains for the purpose of obtaining and reporting the information required in making the divisions between all other classes of service, with the instructions printed on the back of, or in connection with the forms, and the system of instruction imparted to the agents and employes who were charged with the duty of keeping record of the facts. When it was decided in the Minnesota Rate cases that the old bases of division of expenses, such as revenue, ton miles, train miles, etc., were not, alone, proper factors for that purpose, and that a basis must be found in the use made of the property, which would correspond to the extent of its employment in the business, it became necessary to find a means by which such an assignment could be made, and the expense of operation apportioned among the different branches of the service involved in transportation, ascertained and established by tests made in the actual use and operation of the property, and a ratio of cost established between the various lines of traffic based on actualities, or facts, rather than on opinion and expert testimony of railroad officials. The methods prescribed in the formula, and applied in the exhibits in this case, were devised by intelligent and capable men, whose experience fitted them for the task, whose purpose it was to devise a plan in conformity to the views expressed by the court, and whose combined judgment, we submit, is entitled to great weight and respect.

## EXHIBITS 10 AND 11.

The first of these exhibits explains the method of apportioning the cost of non-revenue (company) service between freight and passenger, line and terminal, revenue service. In Exhibit 11 is shown the application of the adjustment of the cost of transporting company material and non-revenue passengers between freight and passenger revenue services.

Company property, material and employes have to be moved from point to point on the frieght and passenger trains in the conduct of the business of the railroad. The cost of this service is a necessary charge on the revenue freight and passenger service, and it should be assigned in such manner as to distribute the burden in proportion to the benefits accruing to each class of service. How this is done is set forth in detail in the two exhibits. We are advised that this is the first effort that has ever been made in railroad accounting to distribute the non-revenue service cost between the revenue freight and passenger services. The matter is explained in the testimony of Mr. Nay on cross examination at pages 296, 297, 298 of the record.

## EXHIBIT 12.

This exhibit contains a division of passenger, "line and terminal," expense between the passenger-carrying service and mail and express traffic on the basis prescribed by the formula at pages 25, 26, 27, 31, 32 and 33. Some explanation has been given of the method of division here used in connection with Exhibit No. 3. In further explanation of the subject we quote the following evidence of T. A. Hamilton:

"Exhibit No. 12 shows, the division of passenger expenses, both line and terminal, between straight passenger traffic, and mail and express, or, rather, it shows the results of that division. That has been made, in the case of line service, on what is termed the 'car foot mile' basis. For the months of November and December, 1913, the actual consist of cars in every passenger train moving within the State of Arkansas was analyzed, and the number of lineal feet in each train assigned to the mail and express service, and assigned to all other passenger train service, were determined, the measurement of the space assigned in each car to each class of service being multiplied by the number of miles that that car ran in Arkansas. Those car foot mile percentages have been used to divide between passenger service and the mail and express service, or, perhaps, I should have said the passenger carrying service and the mail and express service, the passenger expenses. The results of that division are shown in this Exhibit No. 12, which is herewith introduced.

As explained in Exhibit No. 4, mail and express earnings have been assigned to Arkansas. Now, in Exhibit No. 12, following the various preceding steps, we have set aside the mail and express expenses." (R. 84.)

Mr. Nay testified:

"Q. In making the division between freight and passenger you spoke of a moment ago, what did you do with 'mail and express?'

A. When we got the passenger proportion separated, we then set aside from the passenger expenses a car foot mile proportion, as representing the expense applicable to mail and express.

Q. Why did you adopt the car foot mile as a unit for making that division?

A. In my mind, there were two reasons: The first is, that it is about the only common factor between mail, express and the other portions of the passenger service. And then the United States Postoffice Department had adopted the basis in an investigation they made some years ago to determine the cost of carrying the mail on trains. They went into the matter very thoroughly at that time, and the railroad com-

panies all prepared data showing the car foot mile proportion. And my information is that that basis was pretty generally accepted, both by the United States Postoffice Department and by the majority of the railroads, as being fair.

Q. Is there any unit that so nearly represents the use derived from those classes of traffic, mail and express, of the facilities furnished by the Railroad Company for transportation, as the car foot mile?

A. I know of no other unit." (R. 295, 296.)

EXHIBIT 13.

This exhibit contains a division of line passenger expenses, as set forth in Exhibit No. 12 (after exclusion of mail and express), between coach service, pullman service and other passenger train cars, and between intrastate and interstate traffic on the basis prescribed in the formula at pages 25, 26 and 27. The principle upon which this division was made and the method of ascertaining and applying the car foot miles, and the ultimate assignment of the expense incident to the various classes of cars used in passenger trains to intrastate and interstate expense have been referred to, but the following testimony of Mr. Hamilton states the matter so clearly that we ask leave to insert it:

"In Exhibit No. 13, the passenger expenses, line passenger expenses, haulage passenger expenses, from which the mail and express car foot mile proportion has been eliminated, are divided, first, between coaches, pullman and other cars in the passenger trains, mail and express space excluded. That division also has been made on the basis of the car foot miles, the lineal foot space assigned to coaches and in pullman cars, and in the auxiliary cars, the baggage cars, the dining cars the observation cars and parlor cars, the proportions of which having been determined were multiplied by the miles each car ran, according to its use by passengers, or its provision for use by passengers. These car foot miles have been used to divide expenses of line passenger service, mail

and express excluded, between coach service, pullman service and the auxiliary car service in passenger trains.

Q. Auxiliary car service includes what?

A. Baggage cars, dining cars and observation cars.

I want to call attention to one item in Exhibit No. 13; the first column of the exhibit after the reference to the pages of the formula shows the total line passenger expense. Under the head of 'Maintenance of Equipment'—maintenance of locomotives—that total line passenger expense is divided between coaches, pullman cars and other cars. The per cents representing the car foot mile proportions are shown at the head of the column, but in the case of passenger train cars it will be noted that no allotment is made of that expense to pullman cars, repair expenses of passenger train cars being divided between coaches and other auxiliary cars in trains, excluding the pullman. That is for the reason that the company does not make any repairs of pullman cars, except, however, accident repairs, and there are none of that character within this particular period.

*The Court*: Q. You mean under its contract the Pullman Company does its own repairing?

A. Yes. As a matter of fact, we may actually do the work, but we render a bill for our reimbursement. They stand the cost, they bear the cost. If we demolish a car in an accident we replace it, unless that accident be due to a defect in the car itself.

This exhibit shows for each division the percentages and bases on which it was made. After dividing the expenses between the coaches, pullman cars and the auxiliary cars, the coach expenses, taken separately, are divided between intrastate and interstate on the basis of the passengers one mile who rode in coaches. That is an actual statement of the passenger travel in coaches for the two months.

It might, perhaps, be well to digress there and explain how the coach passenger miles and pullman passenger miles are obtained separately.

*The Court*: Q. You charge up the expenses of each mile regardless of the number of passengers, and disregard the space of coach—

A. We first made the division between coaches and pullmans and auxiliary cars—

Q. No, I mean in charging up the expenses you say a 'passenger mile' regardless of whether the coaches are full, or whether there are only a few passengers?

A. Yes, sir; because the number of passengers who ride one mile in those coaches, state and interstate, indicate the use made of those coaches, and, of course, the expense should be spread over each item of that use, be it large or small, in total.

Q. Is there not a greater expense if you carry ten passengers to a coach, only, than if you carry twenty-five?

A. Not in the train expense, sir; not in the line passenger expense, because it costs you no more to haul a full coach, as far as the haulage expense—

Q. I mean, in proportion to the revenue—

A. I haven't considered the revenue at all; this is a question of the use made of those coaches." (R. 84, 85.)

## EXHIBIT 14.

The total line freight expense for the test period, having been ascertained in Exhibit No. 9 and charged with its proportion of the expense of the non-revenue service in Exhibit No. 11, is apportioned in this exhibit between local and through trains (the freight proportion of mixed trains being included in local trains) and the expense of each class of train is then divided between intrastate and interstate traffic in proportion to the net ton miles of each class transported in said trains, respectively.

It is a well known fact, accepted on all hands, that in the operation of American railroads, local freight trains are

more costly to operate per train mile for transportation expenses than through freight trains. The local freight train is manned by a crew numerically larger than that of the through freight train, performs all of the station work of loading and unloading freight, picking up and setting out cars at intermediate stations between district terminals; is a longer time upon the road in accomplishing a given mileage than the through freight train, all of which adds materially to the cost of operation per train mile. Further, the local freight train carries less tons of freight per train mile than the through freight train, which operates to make the cost of transporting a ton one mile on the local freight train greater than the cost of transporting a ton one mile on the through freight train. The evidence in this case has shown that the proportions of intrastate and interstate freight carried upon the local trains are different from the proportion of those two classes of freight carried upon the through trains. It has, therefore, been considered proper in arriving at the cost of intrastate and interstate freight business respectively, to segregate first the cost of operating the through and local freight trains and then to subdivide such cost between intrastate and interstate traffic in proportion to the volume (ton miles) of intrastate and interstate freight carried upon each class of train considered separately.

This exhibit contains the result of the methods adopted under Exhibit No. 1 for separating and determining the expense of operating local and through freight trains, and the ascertainment of the amount of intrastate and interstate freight traffic carried on each class of trains. Under the meth-

ods heretofore used these divisions could not, or at least were not, ascertained with any degree of certainty, but rested largely on estimates made by operating officials. An effort was made in the Arkansas Rate cases (230 U. S. 553) to arrive at a proper division of expenses between local and through trains, and to determine the intrastate and interstate contents of each class of train, referring to which the court, after saying that the ultimate conclusion as to the returns from the business must depend upon the certainty of the proof with respect to the segregation of the results of intrastate operations, found that while the figures and calculations in the cases represented a serious effort to effect a reasonable apportionment, there was not enough data upon which to compute the extra cost of intrastate transportation with sufficient certainty. The court say at page 559:

"The controlling factors, used in the computations, represent general estimates of the conditions of transportation, which may or may not be accurate, and there was an absence of satisfactory evidence, to take the place of the rejected tests, giving with requisite particularity the actual movement of traffic at the times in question, and affording a proper basis for the determination of relative cost."

In this case an attempt has been made to cure the defects in the proof referred to by the court. The calculations upon which the divisions of expense contained in the exhibits in this case are made, are based on the information obtained in the manner provided in Exhibits 2, 2-A to 2-K and 3, in which the history of the movement and the contents of every through train, every local train and every mixed train is given in detail and with as complete accuracy as is attainable by the employees and officials engaged in operating the trains, with the assistance of men specially detailed to supervise and

assist in the work and see that the records were properly kept, and the results of whose labors were compared and checked by the way-bills and other records regularly kept by the company, by which the certainty of proof required in the segregation of the results referred to by the court was obtained as nearly, we submit, as is practicable through human agency, not only with reference to the movements of the trains and the cost thereof, but also as to the amounts of intrastate and interstate traffic that move on them. On this subject we call attention to the testimony of Mr. Hamilton and Mr. Nay.

Mr. Hamilton testified:

"In Exhibit No. 14 is taken up the division of line freight expenses between the intrastate and interstate traffic. It is first necessary to divide the expense between the local and the through train, the freight proportion of the mixed train being combined with the locals, because that is nothing but a local train with a coach on the end of it. The actual assignment—the actual allocation of expenses between local and through freight trains was made of such items as directly attach themselves to those respective classes of trains. Wages, for instance, of enginemen and trainmen were actually allocated, taken from the company's payrolls and time slips for these two months. The fuel for road locomotives was actually charged out to the local and through trains.

*Mr. Moore*: Q. That is for each train, on each run?

A. Yes; I was coming to that. It was not necessary to make any special test to charge out the fuel, as was done in the Cotton Belt case and applied on assumption to the Iron Mountain, for the Frisco for a number of years has conducted a fuel economy campaign, in doing which it keeps records of the coal issued, in tons, to every engine on every class of train, upon every trip. We didn't have to make any special test to get the fuel charges to local and through trains; we already had it. In fact, we keep a great many separate statistics as to local and through trains for our own regular daily information. This is one of them. There is no assumption in that figure and no bringing over of the test on another road; it is

our own actual coal issues to these two classes of trains and against which the fuel agent balances out his stock of coal and accounts to the auditor for it. In the main, such expenses as could not be actually allocated to local and through trains were divided between them on the basis of the gross ton miles in each class of train. That is, the entire weight of the train from the pilot of the engine to the rear platform of the caboose, including the contents of all the cars and including the average loading of the engine's tank or tender with fuel and water. The theory of that was this: We have here the line expense, as previously determined, the haulage expense chargeable to freight service. The use made of the property in incurring that expense is reflected in the trains which moved over the property. The proportionate use was reflected by the size of the train and the best index we could find of size was weight. We took the weight of the entire train from end to end, and its contents, even the contents of the engine in fuel and water. Some items were not divided on a gross ton mile basis. Some were actually located. Some depended on other divisions, as, for instance, the operation of fuel stations was divided on the basis of the charge-out of fuel. That is an actuality, in reality, because the coal is charged out at an average price for the entire railroad, and the money charged for fuel is in reality directly translatable into tonnage, and surely there could be no better division of the expense of operating the fuel stations than the number of tons of coal that are delivered at those stations to local and through trains. That is the division that has been made.

The water expense for freight road locomotives has followed the fuel division, for the reason that a pound of coal burned in the firebox of a local freight engine will evaporate just as much water as a pound of coal burned in the firebox of a through train engine. The water consumption directly follows the fuel.

Aside from that, and the actual allocation of wages and fuel, the expenses have been divided between the local and through trains on the basis of the gross ton mile, actual. How those gross ton miles were obtained is explained in Exhibit No. 2. Having, then, the local train expense and the through train expense, the division of the local train expense was made between intrastate and interstate business on the basis of the net ton mile contents of the cars carried on local trains. That was determined as the result of an actual test, as described in Exhibit No. 2.

The same is true of the through train. We did not get the figures for the local train and deduct them from some total which was already of record and say that the balance was the through train, as was done in the Iron Mountain case, of necessity, because the State did not have the through train performance and could not get it at that time, but we also actually analyzed the through trains just as thoroughly as we did the locals, and there was no process of deduction here. This is an actual analysis. That covers the division of line freight expenses between state and interstate traffic through the medium of the division between local and through trains." (R. 86, 87, 88.)

Mr. Nay testified at page 315: "The Frisco, in this case, has carried the 'line' freight expenses through to a conclusion as between local and through trains," and then have divided the expenses so subdivided, between local and through trains on the basis of the net ton miles in the respective trains, as between state and interstate.

That is the underlying principle all the way through, just as they had one principle which went through the division of 'line passenger' expenses. There it was separated between sleeping cars, day coaches and other cars, mail and express. Here the separation is between local freight and through freight; and practically the same principle that was applied to the 'passenger' is here applied, except that in the passenger it was applied to different sections of the trains, and in this case it is applied to different classes of trains, the local and the through.

I think that gives the principles, Judge Moore, and I think they are right. I think they are such as will produce the right conclusions, and get away from the increased cost estimate we used to have." (R. 316.)

EXHIBIT 15.

In this exhibit a division is made of terminal freight expense between intrastate and interstate traffic. Like Exhibit No. 14, it is based on Exhibits 9 and 11—the parts of said exhibits which relate to terminal freight expense. The following extract from the testimony of T. A. Hamilton will explain the basis of facts upon which the divisions are made:

"This division has not been made, as was done in the Iron Mountain case, where the Interstate Commerce Commission's grouping of station expenses was divided on the basis of the state tons multiplied by two, and the interstate tons charged with one terminal, and that in the lump, for the State. The station portion of this terminal expense has been divided on the basis of the actual tonnage handled in and out of each individual station during the two months. In the Iron Mountain case the yard expense (a portion of which is found in this terminal expense) was divided on the basis of cars handled. The division here has been upon the basis of cars received and forwarded, but not in total for the State. Each individual yard was treated separately, and the expense of that yard treated separately, so there was no over-burdening or mis-distribution by reason of lumping all of the yards in the State and all of the cars handled in the State. The local condition of each yard is reflected in this detail division.

But there is more in this terminal expense than what is ordinarily known as station and yard service. In former cases there has always been a great deal of controversy as to how much switching the local freight train did on its journey each day. That has been a matter of assumption and conjecture. Here, for two months, we found out actually how much time each local freight train in this State switched, each local freight train on the Frisco in this State. We know how much time it devoted to switching and loading and unloading freight at each station every time every train stopped. We know how long it stopped for other purposes, such as taking coal and water, meeting and passing trains, or getting orders. That latter class of time has been charged to line service, because it is necessary for the running of the train over the road, not for the station delivery or receipt of freight. We have segregated the actual performance of these local and through trains and found out how much time they devoted to this terminal service, and we have divided that expense on the basis of that time. Heretofore there has always been buried in the case of both the local train and through train this item of expense. or element of expense, which had nothing to do with the moving of that train over the road. These are not haulage costs, but are really terminal costs. In fact, the local freight train supplants the switch engine when it stops and works at a station for an extended period, a greater or shorter length of time, and that really is a yard function, a terminal function. It simply does that as a matter of economy and expe-

diency to avoid keeping a switch engine there. We have analyzed that time, and have charged the station service time, the terminal time, to terminal service. It has not been buried in the haulage cost and charged to each ton mile alike, but it has been located to that station and charged to the tons that were handled at that station, state or interstate. That explains one of the vital differences in the method heretofore followed and the method that has been followed in these exhibits. This terminal cost that we are analyzing has been built up in that way." (R. 88, 89.)

Mr. Nay also testified on this subject in which he made an explanation from his viewpoint of the propriety of this division, as follows:

"*Mr. Moore:* Q. Will you now go to the apportionment of terminal freight between interstate and intrastate? I think you will find that on page 34.

A. Here the basis throughout is to divide these terminal freight expenses on the basis of the tons, in some cases net and in some cases gross tons, that use the terminal facilities.

Take accounts 2 to 10, which are the tracks and which are used by the cars containing the freight; that apportionment between intrastate and interstate is on the basis of gross tons of loaded cars handled on those tracks. And it seems to me no fairer basis could be used.

When we come to 'buildings, platforms,' where the less-than-carload freight is handled, the division is on the basis of the net tons; so all the way through this division. The apportionment between intrastate and interstate is on the basis of the tons that use the facilities—or on the use basis.

Of course, there are certain accounts in here like 'superintendence' again, that are overhead expenses and are divided on the basis of other accounts. But still that is just the same as the use basis. They are divided on the basis of direct expenses, the latter having been apportioned on the use basis. That runs all the way through this section of the formula.

Q. And what you said covers 'maintenance of equipment' as well?

A. Yes, sir.

Q. On page 35, the 'Transportation expenses' are treated. The word 'consignments' is used in some instances there, is it not? Such as in 'Station employees,' Account No. 63.

A. Yes, sir. I forgot to mention that. The expenses of employes in the station are divided on the basis of the number of consignments—that is, the number of shipments—which is an entirely proper basis because it very frequently happens that one way-bill—a so-called 'blanket' way-bill—will cover a number of shipments or consignments, and there will be practically the same amount of work in connection with each consignment as if separate way-bills had been made for each consignment. In fact, there are some railroads in the east and southeast which are making a separate way-bill for each consignment. The division on those roads would be on the basis of the number of way-bills.

Q. To what class of employees does that refer?

A. That refers to clerical expense, the clerks or the man who makes the way-bills, and records them at destination. A separate freight bill must be made for each consignment. A blanket way-bill may cover fifteen consignments, consigned to fifteen different firms or persons in a city; and a separate freight bill must be made for each one, notwithstanding the fact that that was all covered by one way-bill and all moved in one car.

Another item I should have mentioned, that is not apportioned on the basis of the tons, is the 'terminal yard' expense. That is based on the respective number of state and interstate cars of freight received and forwarded. And the cars that contain both state and interstate freight are counted one-half a car to each class.

This is on the theory that it costs substantially the same for terminal service for all the state cars—that is, the same average for all of the state cars and for all of the interstate cars, regardless of the fact that one may contain forty tons of freight and the other five tons of freight.

This refers only to the 'yard' expenses, the switching and placing of cars.

Q. There are different classes of employees, or rather employees who discharge each class of service in the station and terminals?

A. Yes, sir.

Q. Their expense, I suppose, is assigned in accordance with the class of service rendered?

A. Yes, sir. For example, if there is a station where the agent is also a ticket agent, he has a ticket clerk or ticket seller, the wages of that ticket clerk would be assigned to 'passenger' and 'passenger terminal.' Then his wages would be assigned between intrastate and interstate according to the number of passengers at that station.

And if he were a way-bill clerk, it would be assigned to 'freight' or to 'terminal freight expenses' and be divided on the basis of the number of consignments handled at that station.

So, all the way through, each employee is assigned to the character of service he performs—or, assigned to the expense incurred by the service he performs.

Q. The difference in the method you have just described, and that pursued by the State in preparing its exhibits in the Iron Mountain case, is that all expenses were lumped without discrimination and then divided on a tonnage basis, is it not?

A. Yes, sir. And I have been impressed with the fact that those men had the same end in view that we have in this new formula, except they attempted to reach that end by arbitrarily adding to the mileage 50 per cent to local mileage and switching, counting engine equipment as two and one-half cars, to equate their factors, etc. While in this formula we have attempted to go right to the expense, without any equation of factors, and get at the actual expenses just as nearly as it was possible to do so.

Q. This formula is based on the detailed analysis of the different classes of service rendered and the expense incident to that class?

A. Yes, sir; it is.

Q. And that was lacking in the other method?

A. Yes, sir. This is a very expensive formula to prepare and it may be that the expense deterred all of us from going into the detailed analysis as we have done in this instance.

And then, there is another feature. In this formula the statistics that were necessary for making the apportionment have been gathered currently as the business was going on. It was impossible to gather those statistics on past business; that is, it is impossible for us now to go back to 1912 and gather statistics similar to these covered in November and December, 1913, because the records do not disclose the different details.

It is necessary to organize your force and tabulate these figures currently as the business is moving. And unless the statistics were kept in such elaborate detail all the time the expense of which would make it prohibitive, it would be impossible to go back and compile the data for any prior period." (R. 317-320.)

EXHIBIT 16.

This exhibit contains a division of terminal passenger expense (after the exclusion of mail and express proportion, as set forth in Exhibit No. 12), between intrastate and interstate traffic on the basis of the formula (pp. 31, 32 and 33). In connection with the exhibit we call attention to the following statement from the testimony of Mr. Nay:

"The same theory runs all through the division of the passenger terminal expense; that is, after segregating mail and express, the passenger proportion is divided on the basis of the passengers using the facilities. Not the passengers one mile here, because these are terminal expenses and the passenger who travels ten miles makes substantially the same use of the terminal as the passenger who travels 100 miles. The basis of the number of passengers getting on or off the train and using the station or other facilities, I think is the proper basis for division. I think the formula speaks for

itself. That same principle is used all the way through." (R. 317.)

It will be observed that the division of terminal expenses in this exhibit, as well as in Exhibit 15 dividing freight terminal expense, has been made on different bases. The factors used are shown at the head of the respective columns of each exhibit.

## EXHIBIT 17.

This exhibit brings together and consolidates the expense incurred in each of the several branches of the revenue-producing freight and passenger service, as developed in the preceding exhibits by the application of the results of the test to the traffic actually conducted in each branch of the service in the State during the test period, thereby obtaining the unit of cost per ton mile and per passenger mile of the intrastate and interstate freight and passenger business, respectively, and establishing the cost relation between the intrastate and interstate branches of the two classes of traffic. It may conduce to a better understanding if we attempt to explain the manner in which the exhibit was made up. The exhibits which precede it, and accompanying explanations, describe in some detail how the expenses of November and December, 1913, were assigned to the State, and divided between line and terminal, freight and passenger, the non-revenue service adjusted, and the expense of mail and express traffic excluded from the passenger expenses. Following that the division between intrastate and interstate traffic of the freight and passenger, line and terminal expenses, respectively, is explained. The final results of these divisions are shown separately in

Exhibits 13, 14, 15 and 16. Now in Exhibit 17 the results of all these divisions have been assembled and the total intrastate passenger expense, line and terminal, added together, the total intrastate freight expense, line and terminal, added together, and so with the interstate, line and terminal, freight and passenger, and the total cost of each class of traffic shown. There is then shown the number of passengers one mile and tons one mile, intrastate and interstate, separately. The intrastate passengers one mile are divided into the total intrastate passenger expenses shown on the exhibit, and by this process the operating expenses per passenger mile for intrastate passenger traffic has been determined. The same process is followed with the interstate, the interstate passenger miles being divided into the interstate passenger operating expenses and the cost per interstate passenger mile ascertained. The exhibit then shows the relation between these two costs per passenger mile, and that the intrastate cost per passenger mile was 15.43 per cent in excess of the passenger mile cost of the interstate.

The same process is followed with respect to the freight, the tons one mile of each class, intrastate and interstate separately, being divided into the total operating expenses of each class of freight. The operating expenses per ton mile of each class is thus obtained and the exhibit shows the relationship of these ton mile costs, which is that the intrastate exceeds the interstate by 319.58 per cent.

In former rate cases it has been conceded by all parties that there is an excess cost incident to the conduct of intrastate business, both freight and passenger, over interstate

traffic. What this extra cost was in amount has heretofore rested upon expert opinion evidence. In the Arkansas Rate cases, reported in 230 U. S., the accountants for the State did, as heretofore mentioned, attempt in a crude way to work out this extra cost. Their work, however, was predicated almost entirely on assumptions, and, owing to their restricted facilities for gathering data, did not go very far into the details of operation. In the investigation, which has been referred to in this case as a test period, covering the months of November and December, 1913, the effort has been to work out the extra cost of intrastate traffic through a first-hand analysis of operating conditions conducted concurrently with the practical every-day operation of the railroad, the final results of which are shown in this exhibit.

Having determined the cost relationship of the intrastate to the interstate traffic, we will now endeavor to explain to the court how they have been applied to the division of expenses between the intrastate and interstate freight and passenger separately in the entire year ending June 30, 1913.

EXHIBIT 21.

This exhibit, as the heading indicates, contains an apportionment of operating expenses to the State, and the division of such expenses between freight and passenger, intrastate and interstate, mail and express, for the fiscal year ended June 30, 1913.

It sets forth in detail the application to the operating expenses for the fiscal year ending June 30, 1913, in their division between the intrastate and the interstate, of the per-

centages of excess cost of the intrastate business determined in the test conducted in November and December, 1913, shown in Exhibit No. 17. The following statement copied from page 1 of the exhibit will serve to explain how the application was made:

"The operating expenses assignable to the State of Arkansas for the year ending June 30, 1913, and the division thereof between freight and passenger service, were determined in accordance with the provisions of the formula filed as Exhibit No. 1, and the modifications thereof, as set forth therein, adopted by the St. Louis and San Francisco Railroad. (See also explanatory Exhibits Nos. 2 and 3.)

"One exception made in following the basis laid down in Exhibit No. 1 (as modified) was in the adjustment, between the various classes of service, of the non-revenue service costs. The principle laid down in the formula was followed, but the adjustment of the non-revenue service costs for the year, was made on the basis of the similar adjustment for the months of November and December, 1913, as set forth in Exhibits Nos. 10 and 11. That is to say, the percentage of burden or relief on account of non-revenue service performed by one revenue service for the other in November and December, 1913, was applied in making the adjustment of non-revenue service costs in the operating expenses of the year ending June 30, 1913.

"Another exception, in detail but not in principle, was that the passenger operating expenses in the five Interstate Commerce Commission groups under the heads of Maintenance of Way and Structures, Maintenance of Equipment, Traffic Expenses, Transportation Expenses and General Expenses, determined as hereinbefore set forth, for the year ended June 30, 1913, were divided between passenger, and mail and express on the basis of the relative percentages of car foot miles in mail and express and passenger carrying service, as determined for the months of November and December, 1913.

"The proportion of passenger expenses chargeable to passenger carrying service (after elimination of mail and express proportion) was divided between intrastate and interstate passenger traffic on basis of the respective passenger

miles of each class for the year ending June 30, 1913, there being added, however, to the intrastate passenger miles 15.43 per cent, in arriving at factors for this division, this percentage representing the excess cost per passenger mile of intrastate passenger traffic over interstate passenger traffic, for all passenger operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17.

"The freight proportion of operating expenses, determined as hereinbefore set forth, was divided between intrastate and interstate on basis of the respective ton miles of each class for the year ended June 30, 1913, there being added, however, to the intrastate ton miles, in arriving at factors for this division, 319.58 per cent, this percentage representing the excess cost per ton mile of intrastate freight traffic over interstate freight traffic, for all freight operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17."

In order that there may be no misunderstanding, we here call attention to the fact that the expenses appertaining to the total business in the State were actually allocated and assigned to the State by an analysis of the records of the company for the entire fiscal year, proceeding on the basis laid down in the formula filed as Exhibit No. 1. These actual State expenses for the fiscal year were divided between the freight and passenger services in detail for the entire year, the factors developed in the test period being applied to that division between freight and passenger only insofar as the adjustment of the non-revenue service costs between freight and passengers were concerned. This is set out in a note to page 2 of the exhibit.

In dividing the passenger expenses for the year between passenger and mail and express, the car foot mile percentages of the two months test period were applied, which is also shown in a note to page 2 of the exhibit. With these two exceptions

the expenses of the fiscal year were allocated to the State and divided between the freight and passenger services in detail in accordance with the provisions of the formula.

In dividing the freight and passenger expenses between intrastate and interstate for the year ended June 30, 1913, the actual intrastate and interstate passenger miles and ton miles of that year were used as factors, with the addition to the intrastate ton miles and passenger miles of the extra cost percentages developed as shown in Exhibit No. 17. These divisions between the intrastate and interstate business are set forth in detail in Exhibit No. 21, and the resultant figures of operating expenses chargeable separately to intrastate and interstate freight and passenger carried directly into the income account statement for the fiscal year which appears in Exhibit No. 22.

EXHIBIT 22.

This exhibit shows in detail the earnings and expenses, taxes, rental and hire of equipment upon each class of business conducted by the Railroad Company within the State of Arkansas for the fiscal year 1913, as ascertained in preceding exhibits which are referred to by number, and shows the net income derived from each class of business available as a return on the value of the property employed in each class of service, after deducting from the total operating revenues the operating expenses, State and Federal taxes, net rental and hire of equipment, and then shows the percentage of return yielded in each class of the business. The method used in dividing taxes, rental and hire of equipment, has been explained in connection with Exhibit 5.

The earnings are not based on the inhibited passenger and freight rates. After the injunction was granted, the Railroad Company reinstated the rate of three cents per mile that had been in effect before the Act of February 9, 1907, prescribing a rate of two cents per mile, and that rate was enforced during the entire fiscal year 1913. It also put into effect a schedule of freight rates higher than those prescribed in Standard Freight Distance Tariff No. 3, which was later modified under an order of the court and a schedule of freight rates put in which was designated and commonly known as the "Court Rates," and was in force during the fiscal year 1913. This is referred to in a note at the bottom of the exhibit, and the diminution in revenues upon the application of the inhibited rates to the business of the year, and the balance then available as a return on the value of the property, are set out, with the result that the net earnings on the intrastate freight business of the year, under the enjoined rates, would have been $800.15, and there would have been a loss on the intrastate passenger business of $65,428.85, and a loss on the freight and passenger combined of $64,628.70.

Exhibit 33 contains a statement of the rates in force at different periods during the time covered by the exhibits. (See appendix, p. 272.)

## APPORTIONMENT OF PROPERTY VALUE.

The total value of the property used in operation within the State is agreed on in the stipulation at page 906 of the printed record. The testimony of F. G. Jonah, the chief engineer of the railroad, and other witnesses familiar with the property, was taken prior to the agreement, and the results of

the evidence are embodied in Exhibit No. 18, which also contains a distribution of the value among the various classes of traffic. The agreed valuation is less than that of the chief engineer, and scales it down horizontally to an amount which is 73.24 per cent of the value as shown in said exhibit. The reduction does not disturb the proportions of value assigned in Exhibit 18.

The apportionment was made in compliance with the rules prescribed in the formula, page 38, 38-A, 39 and 39-A. The apportionment thus made follows the division of operating expenses, and is explained in the testimony of T. A. Hamilton at pages 249 and 446.

"As I have stated, we divide the value of the property on the basis of the division of operating expenses, not in a lump, but, as Exhibit No. 18 shows, each class of property separately.

The reason for that is this: We have assumed here and think we have succeeded in dividing our expenses on the basis of the use made of the property. If that is true, then the results of our division of the expenses reflects the use, and we have used those results to divide the property on the use basis in accordance with what we understood to be the Minnesota decision.

Take Exhibit No. 18 as a text: We divided the property there, the roadway and structures—it is all set forth in the exhibit, but I will state it briefly—on the basis of the assignment of transportation expenses. That reflects the money spent in using, in a large measure, the roadway and structures in running trains over it and hauling traffic.

So we felt that the transportation expense division, which we think has been made upon the basis of the use made of the property, might fairly be used to divide the roadway and structure value.

Then as to locomotive equipment, we divided that upon the basis of locomotive repair expenses, which we felt had

been divided, through these various steps and ultimately between state and interstate, freight and passenger, on the basis of the use made of the locomotives.

We followed the same plan for passenger cars and freight cars. I think there was one exception there where we could assign direct, and that was some mail cranes, masts and arms, for taking mail onto a moving train, and we charged those direct to the mail. That is the theory on which that was handled. (R. 249, 250.)

"Judge Hill asked me why I had made my line division of property on the basis of transportation expenses and not upon the engine ton mile which I had used to divide the maintenance of way expenses. As a matter of fact, I thought that the maintenance of way expenses themselves, in this period, might or might not be reflective as between line and terminal. I know that the transportation use of the property, in a broad sense, was full every day in the year and, therefore, used that.

Following Judge Hill's suggestion we re-worked those figures using the engine ton mile division. I have not prepared them in the form of an exhibit, but I have the effect of it here and have all the detail papers, which I will be glad to submit to the accountants for the State. I can make an exhibit out of it if desired, but I have not had the opportunity as yet.

I have made the apportionment of line values on the engine ton mile basis, as suggested by Judge Hill, and, taking the year ended June 30, 1913, as an example—we had time only to work up one of the years—I found the concrete effect of it is to reduce the value of property assigned to intrastate freight, 19 per cent; to increase the value of property assigned to intrastate passenger, 18 per cent, and to make little or no change in the total intrastate values.

Carried with that change in the value of property is a change in the apportionment of taxes. which also goes to affect the return upon the various classes of intrastate business. The concrete result of the change, applied to Exhibit No. 22, is to change the return on intrastate freight from 1.07 per cent to .23 per cent—that is, 23/100 of 1 per cent—to eliminate entirely the return of almost 2 per cent on intrastate passenger, and to leave the return upon the total intrastate business so small that you can not find it with a miscroscope.

So, really, the engine ton mile basis makes no vital difference in our figures. I might have used it; I believe in it, but for the reason stated, I used the transportation expense. I have heard a great deal of commendation among railroad men of the revenue train mile. I have not worked that out here, but I believe the engine ton mile is, perhaps, a more reflective basis. If applied the other might show somewhat similar results.

Summing up the whole proposition, the change that we would make in our Exhibit No. 22 would still leave us a deficit of $32,000 on our total intrastate business. Of course, that is not affected by the change in the property values on the engine ton mile basis of distribution except as it switches the taxes a little bit, and that is a negligible change. We still have not sufficient to pay expenses and taxes on the face of this exhibit, so really the property value division becomes immaterial." (R. 446, 447.)

The exhibits for the separate years in this case show that the earnings on the basis of the inhibited freight and passenger rates are not sufficient, in any of the years covered by the investigation, to pay the expense of operation, except that in the fiscal year 1910 there was a net earning on intrastate freight traffic of 0.064 per cent. The matter of the valuation, therefore, ceases to be of any particular importance in this case.

Exhibit 61, which shows the average earnings of the four years, 1910 to 1913 inclusive, and in which the Kansas City, Fort Scott & Memphis Railway rental charge is eliminated and the stipulated value of the property used, shows a return on the intrastate freight business in the year 1910 of 32/100 per cent; 1913, 31/100 per cent, and a deficit in each of the other years. For the intrastate passenger business, it shows a deficit in each one of the years, except in 1911, which shows an earning of 1.26 per cent, and on the total intrastate earn-

ings, freight and passenger combined, a deficit is shown in each of the years.

EARNINGS AND EXPENSES DURING THE FISCAL YEARS 1912, 1911, 1910, AND FOR THE MONTHS OF SEPTEMBER, OCTOBER, NOVEMBER AND DECEMBER, 1907—

EXHIBIT 23.—THE EQUATING PROCESS.

It was deemed advisable to determine the effect of the inhibited rates on the earnings of the property during the preceding periods. It was impracticable to go back and make the same detailed analysis of the business as was made for the fiscal year 1913, and it was unnecessary to do so, for the Railroad Company, in making its reports to the State Railroad Commission after the year 1909, had made an assignment to the State upon a uniform basis, or formula, which it used in the year 1913, and is still using. It also had a formula which it used to divide expenses between freight and passenger service for its own operating comparisons. It had the result of the application of the old formulae (sometimes referred to as the Douglass formula), to the earnings and expenses in the State, and the earnings and expenses of the system in assigning them to the State, for the fiscal year 1913. It also worked up the result of the application of the new formula to the business of that year in minute detail account by account. It was found that the result of the application of the new formula to the earnings and expenses bore a certain relation to the result of the application of the old formulae. Thus a given assignment of earnings and expenses to the State under the new formula would be, say, 98 per cent or 102 per cent of what is

reported to the State Railroad Commission, under the old formula, and so on throughout the various divisions of the State traffic.

The comparison of the two formulae and the equating of the results obtained under the old formula in former years was equivalent, in effect, to going back and working up those years in detail on the basis of the new formula, and the relationship of the two formulae could be expressed in percentages.

The method pursued in making these equations is explained in Exhibit 23, pages 1 and 2, and the results of the application of the old and the new formulae in the assignment of the various classes of earnings to the State, in the assignment of operating expenses, freight and passenger, to the State, and the apportionment of expenses assigned to the State between freight and passenger business under the old and the new formula, expressed in percentages, are shown on the succeeding pages of the exhibit, which is printed in the appendix, page 246. We think the explanations contained in the exhibit in connection with the testimony of the witnesses Hamilton and Nay, at pages 103 and 332 of the record, will convey a clear understanding of the plan followed in making the equation and its effect. Referring to this subject, Mr. Nay testified:

"I understand that they took the earnings or revenue, first; that they were redivided on the basis of this new formula and compared with the original results arrived at by the auditor.

For the entire year 1913, and it was found that the results under the new formula, in each item of the earnings, was a certain percentage of the results under the old formula,

and then those percentages were applied to the earnings of 1912, 1911, 1910, and the four months of 1907. Take the freight earnings: It is shown here that the percentage under the two formulas was 100.82 per cent interstate, and 100 per cent even intrastate. Of course, there would be no difference in the intrastate.

It was assumed that the difference between the results of the two formulas would be the same percentage in prior years, and I think it is a fair assumption that if the figures had been worked out in detail it would produce substantially the same result. There might, perhaps, be a difference of a few dollars due to the fractions, but the results produced by that equation are right.

Q. Is that a correct principle of cost accounting?

A. Yes, sir; and it would not matter if the old formula was wrong, the relations between it and the new formula would remain the same. It would always be the same, whether it applied to one year's business or another.

Q. The equating would overcome any error that might exist in the formula as used in previous years?

A. It would if the new formula is correct, and I believe the new one is correct. What I meant is the equation would reduce the figures of the former years to the basis of the formula now before us, and that is true of operating expenses as well as of earnings. I understand that a similar method was followed in connection with operating expenses: That it was found that under the new formula the operating expenses were so much; under the old formula they were so much, and the relation of each one of the five classifications—maintenance of way and structures; maintenance of equipment, traffic expenses, transportation expenses and general expenses was found, and then that same relation was applied to those five general headings of operating expenses for the previous years.

A. I think that is a fair and accurate method of reducing those earnings and expenses to the basis of the new formula. Of course, as I said before, if they were worked out in detail, the results would probably be a few dollars different one way or the other, but they would not be substantially different." (R. 332, 333.)

The relationship employed in the processes of equation described, based upon the complete application of both the old and new formulae, in the year 1913, is set out in detail in the figures contained in Exhibit No. 23, and the percentage relations thus established are applied in Exhibits 24, 25, 26 and 27-A to the earnings and expenses for the preceding years. The percentages thus applied are shown on pages 3 and 4 of Exhibit 23. Ninety-eight per cent of the intrastate earnings, consisting of freight revenue, passenger revenue and special service train revenue, was susceptible of actual allocation so that the process of equation was only applied to 2 per cent of the earnings.

EXHIBIT 24.

We will now call attention for a moment to Exhibit 24, where the application of the method of equating is made to the business of the fiscal year 1912. It contains a complete statement of earnings and expenses in the State of Arkansas, apportioned as between the various classes of traffic. The first matter treated of is the apportionment of taxes. These are the actual taxes accrued in that year, and are apportioned on the basis of the division of property values, in the same manner as in the year 1913, as has been explained. It also shows the division of the actual rents, both charges and credits, for the year 1912, and the apportionment of hire of equipment charges actually incurred within the year, on the basis described in connection with Exhibit 22. On page 12 of the exhibit the equating percentages are applied, placing the earnings and expenses assigned to the State, and divided between freight and passenger and mail and express, upon the proper basis through the methods described in Exhibit No. 23.

On page 13 will be found the tables showing the equations of expenses on the bases of the percentages previously described. On page 14 these expenses, after their assignment to the State, and division between freight and passenger services in the preceding pages of the exhibit, are subdivided between intrastate and interstate, freight and passenger, separately, through the application of the percentages of extra cost intrastate over interstate, determined in 1913, to the actual intrastate ton miles and passenger miles of the year 1912. The complete results for the year are shown on page 15 in the same form as in Exhibit 22 for the year 1913. The gross revenues from intrastate freight business were insufficient by $30,692 to pay operating expenses, taxes, rentals and hire of equipment. This is shown on the face of the exhibit. But during that year the intrastate passenger traffic was on the basis of three cents a mile. Had the inhibited rate been applied, the exhibit shows that the intrastate passenger earnings would have been insufficient, by the amount of $38,078.18, to pay the expenses of the intrastate passenger business, taxes, rentals and hire of equipment, and that there would have been a deficit of $69,770.19 in the conduct of the intrastate freight and passenger business combined. In this exhibit, and in Exhibits 25, 26 and 27-A, covering the preceding periods, 98 per cent, in round figures, of intrastate revenue, and all of the taxes, rentals and hire of equipment charges, are the actual figures pertaining to those periods, and are not produced as a result of the equating process; and when we come to the division of expenses between intrastate and interstate in all of these periods, the actual ton miles and passenger miles of each period are used, with the addition of the extra cost percentages determined in 1913, so

that the equating process applies only to the assignment of 2 per cent of the revenues and to the operating expenses in their assignment to the State and in their division between freight and passenger.

Exhibit 24 is typical of the three that follows, and what has been said in regard to it is equally applicable to the others. In this connection we call attention to the following testimony of Mr. Hamilton at page 104 of the record:

"Exhibit 24 covers completely the results for the year ended June 30, 1912, arrived at on the basis which I have just described. I want to say, however, that after we got the earnings assigned to Arkansas, and had the expenses assigned to Arkansas, and divided them between freight and passenger service on the basis of this equation, we then divided them between interstate and intrastate on the basis of actual ton miles and passenger miles hauled in each of those years, state and interstate, with the same percentage of extra cost that underlies the whole thing.

In 1912, we were operating under the court tariff and on a three-cent passenger rate. On the basis of the court tariff rates, we did not earn enough to pay freight operating expenses, taxes, rentals and hire of equipment. On the basis of the three-cent passenger fare 4.34 per cent. If we had charged a flat two-cent rate, on the same volume of traffic, we would have been $38,000 short of earning our operating expenses, taxes, rentals and hire of equipment. There would have been a deficit."

At the time these exhibits, including also Exhibit No. 22, were prepared by the accountants, it was assumed that an annual rental charge paid for the Kansas City, Fort Scott & Memphis Railway, a leased line, should be included in the operating expenses, but the matter having been brought to the attention of the court during the taking of the evidence, it was held that the rental was not a proper charge, and Exhibit 28,

eliminating that charge from the expenses shown in Exhibits 22, 24, 25, 26 and 27-A and showing the effect thereof, was prepared and filed.

The equation rests upon the relationship of the results of applying the formula used by the railroad in making its reports to the State Railroad Commission, and for other purposes, and the new formula filed in this case. Mr. Hamilton, who is an expert cost accountant, as well as a man of very large experience in all branches of railroad accounting, and many branches of operation, stated of it:

"This equating process, as a matter of mathematics, is sound. I do not think anybody will dispute that. It needs only the assurance that the company's old formula results, upon which the equation rests, have been obtained upon a uniformly applied basis throughout all of the periods involved." (R. 848.)

Appellants did not contest the soundness of the principle upon which the equation is based, but attacked it collaterally, so to speak. They introduced Mr. L. N. Simson, a cost accountant, who testified that the equating method had been applied only to the sub-total classifications; that is, to the total of maintenance of equipment, maintenance of way, transportation, traffic and general expenses; that had the percentages of difference been applied to the individual Interstate Commerce accounts, the equated figure for the four months ending December 31, 1907, would have been less than the equation of subtotals by $7,397.80. (R. 612, 613.) Mr. Hamilton was examined in regard to that, and testified that he had made the equation by individual Interstate Commerce Commission accounts, as Mr. Simson suggested it should be, and adjusted the company material burden from the freight to the passenger side

in accordance with his views, and applied the per cents resulting to each individual Interstate Commerce Commission account as assigned under the old formula to freight and passenger separately. If the equation had been made of the expenses in that way in detail, instead of assigning $7,397.80 less to the State of Arkansas, it would have assigned $8,400.38 more. (R. 824.)

In applying the old formula used in the year ending June 30, 1913, to the assignment of expenses to the State, the Auditor made some clerical errors. These were discovered by the accountants for the State in the course of their examination of the railroad records, and their nature and amount were explained by Mr. Simson in the testimony in connection with Exhibit G. The examination of the records showed that the Auditor, in the assignment of expenses in the formula used by him, assigned $72,107.48 to Tennessee, which should have been assigned to Arkansas under his formula. This grew out of a clerical error in the division of the terminal expenses at Memphis in the State of Tennessee. Upon investigation Mr. Hamilton found that Mr. Simson's statement was correct. They agreed that the error made a difference in the results of the equating process of $23,080.62, and that the expenses in Arkansas for the four months ending December 31, 1907, would be reduced for freight transportation $16,977.90, and for passenger transportation $6,102.72. Mr. Hamilton further testified that he did not discover the error in the application of the old formula until it was called to his attention in connection with Exhibit G, filed by Mr. Simson. That as soon as it was discovered, he worked the mistake out through all the calculations contained in Exhibit 27-A, and the result was that after the

correction of the error, the gross earnings from intrastate business shown on that exhibit still left a deficit of $807.23 in operating expenses, with nothing to apply to the payment of taxes. (Simson, R. 610, 611; Hamilton, R. 839, 840.)

At page 614 of the record Mr. Simson referred to certain items of expense which he stated should have been added to the State of Arkansas by the auditor in addition to the Memphis terminal item, which he treats of in Exhibit G. These items are yard supplies and expenses, wages of yard conductors and brakemen, wages of station employees, station supplies and expenses, and injuries to persons. Mr. Hamilton, being recalled on this point, testified that he made an investigation of the matters about which Mr. Simson had testified, and made the following explanation of it:

"As I understood Mr. Simson's statement, it was that Mr. Douglas claimed to have made a direct allocation of certain items to the State of Arkansas, and that we did not get the same results when we made what we call a direct allocation under the new formula.

There seems to have been some misconception of what those items were.

Mr. Simson kindly loaned me his working sheets on that and I went over them. We found that they are a very large part of the same items that Mr. Simson reflects in his Exhibit G.

We will come to Exhibit G a little later, but the connection might as well be established here as not.

Exhibit G shows that in following what we term the 'old formula,' or, rather, our general auditor's regular formula for assignment to States, in the year 1913, Mr. Douglas set up part of the Memphis terminal expenses, which, on the basis of his formula, were properly chargeable to the State of Arkansas. Then, through a clerical error in his statistical department, those items were charged to Tennessee.

We, of course, based our equating percentages in 1913, in good faith, on Mr. Douglas' original assignment.

But we put that money actually into Arkansas, every dollar of it. Because we made a correct allocation.

So, then, the per cents that we obtained did not reflect the proper equation, so far as those items were concerned.

Mr. Simson shows that in his Exhibit G, which I will show later.

I find in tracing out the items which Mr. Simson mentions on those pages of the records, that they are included in the same items which appear in Exhibit G.

So our direct allocation was not so very different from Mr. Douglas'. In fact, the spirit of them was not very far apart.

There can be but one construction of that, that these were items that did not require divisional or entire line pro rate. They were practically all station and yard expenses, which would locate themselves geographically. We did not have to make a pro rate of them, except at the middle of the river at Memphis.

Mr. Douglas did directly allocate these items, but through an error of a clerk in his office, the Arkansas proportion was put in the Tennessee column. That is the whole thing in a nut shell. It is the same stuff that appears again in Exhibit G." (R. 825.)

Mr. Oliver, another accountant employed by the appellants, made the discovery that the auditor of the Railroad Company, in making the assignment of expenses for Arkansas under the formula used by him in 1907, had made certain errors in the month of September. The criticism was made that the auditor did not use the formula consistently throughout,

but used a different basis in September from that used in the following three months of that period.

The attention of Mr. Hamilton was called to it during the cross examination, and upon looking into it he testified that Mr. Oliver was correct. The matter is explained by him at page 272, and the following pages of the printed record. He was then asked what effect the correction of the clerical errors spoken of would have on the assignment of expenses to the State made by the Auditor under the old formula in the four months of 1907, and testified:

"A. The corrections of the clerical errors and the reworking of Mr. Douglas' figures to make his application of his formula in September line up with what he did in the other three months (and has done ever since down to this present date), would make the following change in the figures that we showed in our Exhibit No. 27, covering those four months.

That is to Arkansas expenses in those four months—it would add for the "Maintenance of Way and Structures," $1,525.61.

It would deduct from the Arkansas expenses—because Mr. Douglas had over-assigned to Arkansas—from "Maintenance of Equipment," $2,524.48.

It would deduct from the "Traffic expenses" charged to Arkansas by Mr. Douglas, $567.42.

It would deduct from the "Transportation expenses" assigned to Arkansas by Mr. Douglas, $46,353.06.

It would deduct from the "General expenses" charged to Arkansas by Mr. Douglas, $479.85; or a total net deduction from the Arkansas expenses, as Mr. Douglas assigned them (which we equated, of course, in our Exhibit No. 27) of $48,299.20.

Q. *By the Court*: You mean, from the entire Arkansas business, or the interstate business?

A. All the business within the State. That is just the gross assignment to Arkansas.

Q. Have you reworked Exhibit No. 27 for the purpose of showing the effect of those deductions?

A. Yes, sir; I have here Exhibit No. 27-A, which is an exact reproduction along the lines of Exhibit No. 27, with these deductions of overcharge in expenses to Arkansas.

Q. So the assignment of expenses to Arkansas on the basis of Mr. Douglas' old formula, in your exhibits covering the years ended June 30, 1913, 1912, 1911 and 1910, and the four months ended December 31, 1907, are now upon a uniform and consistent basis of division after you made the corrections in Mr. Douglas' 1907 figures, which you have explained?

A. Yes, sir; they are."

"I have gone carefully over Mr. Douglas' application of his old formula for assignment of expenses to Arkansas and scrutinized his working sheets in detail for the years ended June 30, 1913, 1912, 1911, 1910, and the four months ended December 31, 1907.

After correcting the clerical errors in the four months of 1907, and the misapplications of the formula in the one month of September, the basis of division applied by Mr. Douglas in assigning expenses to Arkansas in these years—1912, 1911 and 1910—has been in exact agreement with the basis that Mr. Douglas used, item by item, in the year ended June 30, 1913.

We have been carefully over that entire ground, and know whereof we speak.

Further, after making this deduction of $48,399.20, as reworked in Exhibit No. 27-A, the four months ended December 31, 1907, are also now, as to basis of division, in exact agreement with the methods employed by Mr. Douglas in the year ended June 30, 1913.

Q. Did I understand you to state on cross examination that in your exhibits you have not accepted Mr. Douglas' assignment of expenses to this State as properly chargeable in the various periods which are covered by these exhibits?

A. No, sir. As an academic proposition, I think Mr. Douglas' bases are wrong. They are not all use units, by any means. What we have done, however, is to determine the relation of what Mr. Douglas' formula brought in 1913 to what we got by completely reworking 1913 on a basis of our new formula, Exhibit No. 1, and when we had established that relationship we equated Mr. Douglas' assignment in the years 1912, 1911, 1910, and these four months of 1907, to a new figure on the basis of that 1913 relationship between the two formulas, and that is all explained in Exhibit No. 23.

But it does not make much difference whether Mr. Douglas divided these expenses in all these back periods by engine miles or potatoes, just so he used the potatoes consistently and used them in 1913, where we made our comparison of his results with the new formula. As a mathematical proposition, our equation is correct." (R. 274, 275, 276.)

The matter of the correctness of this proceeding was taken up by Judge Hill on cross examination of Mr. Nay. His testimony on that subject is not very long.

It will be found on pages 345, 346 of the record:

"*The Court*: I understood Mr. Hamilton's testimony to be that $48,000 was errors he found in Mr. Douglas' accounting, that which he had credited in his accounts. The $74,000 was taken out on account of the rental. But my recollection of the testimony is, and that is what I understood, that as to the $48,000 he found there had been several errors made by Mr. Douglas, which he corrected, and that made the difference.

*Mr. Moore*: And that correction had been agreed upon between him and the State's accountants.

*The Court*: He and Mr. Oliver agreed upon that.

*Mr. Hill*: I will ask Mr. Hamilton if this is not correct: That the total errors, in clerical errors and departures from

the formula were about $50,000, and by correcting the September data to conform to the formula, of the other three months, it would reduce that to about $48,000.

*Mr. Hamilton*: Yes, that is correct, and they are in Exhibit 27-A, and the equations have been made in all the exhibits applying Mr. Douglas' old formula. We have had that rechecked.

*The Court*: I want to get it as clear as possible.

A. There are really involved in this case three formulae, "A," "B" and "C." "A" is one of the formula which was used in 1907 for one, two or three months.

"B" is a formula used by Mr. Douglas for part of that period. "C" is a new formula which is before us today.

We want to equate for 1907 on the basis of the present formula without going through the immense detail of work which would be necessary in order to work it out item by item. So, we find, in 1913, for example, that formula "B" and formula "C" have the relation of 95 to 100 to each other. Formula "C" produces 95 per cent of the results of formula "B."

Now, when we go back to this formula which was worked out on the two formulae, if "A" and "B" are radically different, and we apply the relation which existed between "C" and "B," we get a result which is wrong, and the erroneous result will be in proportion to the difference in the formulae "A" and "B." Isn't that your question?

*The Court*: Yes. Or, in proportion to the errors that may be worked out. It would be the same thing, if it is an error in the formula or an error in the calculations?

A. Yes, sir. Now, if those errors are corrected, and these apportionments which were made in formula "A" are reapportioned to the basis of formula "B," and then this equation applied to that result after the corrections are made, then you have a perfectly good result.

*The Court*: Then you would have but two formulae; you would eliminate one?

A. Yes, you would eliminate formula "A."

The matters referred to embrace all the grounds of attack made on the method pursued in determining the earnings and expenses in the years preceding 1913 through the process of equation. All the errors in the application of the old formula were corrected and the figures reworked in Exhibit 27-A, which takes the place of original Exhibit 27, relating to the four months ending December 31, 1907. The matter is so fully explained in the testimony that further comment is unnecessary. Mr. Simson practically admitted that an adjustment of the discrepancies referred to in his evidence would produce correct results, at page 615 of the record, where he states that "all these things would have to be adjusted before any weight could be given to the equated figures." We have shown how they were adjusted and the clerical errors which occurred in the accounts in 1907, and in the assignment of the expenses of the Memphis terminal in 1913, were corrected and adjusted, so that the old formula was applied consistently in both periods and the equation made on the basis of the adjustments, and the result shown in the corrected exhibit, No. 27-A.

## TEST PERIOD.

On account of the very material importance of the test made for the purpose of determining the relative cost of conducting the intrastate and interstate business of the railroad within the State of Arkansas with reference to the period covered by the test, as well as the manner of making it, we wish to call the attention of the court with some care to the evidence, and the conditions disclosed by the exhibits, bearing on the fitness of the period used for the purpose of reflecting the average condition throughout the year. This proceeding was brought on July 18 and the injunction was granted on September 3, 1908. The business and operations of the months of September, October, November and December, 1907, during which time the inhibited freight and passenger rates were in force, were used on the application for injunction for the purpose of showing the effect of those rates upon the earnings of the railroad. Other similar suits were brought at the same time, and the evidence was taken in the cases of the St. Louis, Iron Mountain & Southern Railway and the St. Louis Southwestern Railway, and those cases brought to final hearing on May 11, 1911. The evidence in this case was not taken until after the decision of those cases by the Supreme Court (Allen v. St. L., I. M. & S. Ry. Co., 230 U. S.), on June 16, 1913. The exhibits prepared in this case cover the business of the four months period in 1907, and the fiscal years 1910, 1911, 1912 and 1913. The year 1909 was not included because of the difficulty of obtaining a part of the records of that year. The manner of conducting the test we think has been sufficiently described in what has been said heretofore, and in the exhibits and testi-

mony referred to. As illustrating the thoroughness with which it was conducted, we here call attention to the fact that in the division of the terminal expense each individual station and yard in the State was treated separately, and the local condition of each yard is reflected in the details of the division, and, in the matter of switching by local trains, which has heretofore been determined by estimates and the opinions of witnesses, the actual time devoted by each local freight train to switching during the test period was ascertained. On this point we call attention to the following evidence of Mr. Hamilton:

"We know how much time it devoted to switching and loading and unloading freight at each station every time every train stopped. We know how long it stopped for other purposes, such as taking coal and water, meeting and passing trains, or getting orders. That latter class of time has been charged to line service because it is necessary for the running of the train over the road, not for the station delivery or receipt of freight. We have segregated the actual performance of these local and through trains, and found out how much time they devoted to this terminal service, and we have divided that expense on the basis of that time. Heretofore, there has always been buried in the case of both the local train and through train this item of expense, or element of expense, which had nothing to do with the moving of that train over the road. These are not haulage costs, but are really terminal costs. In fact, the local freight train supplants the switch engine when it stops and works at a station for an extended period, a greater or shorter length of time, and that really is a yard function, a terminal function. It simply does that as a matter of economy and expediency to avoid keeping a switch engine there. We have analyzed that time and have charged the station service time, the terminal time, to terminal service. It has not been buried in the haulage cost and charged to each ton mile alike, but it has been located to that station and charged to the tons that were handled at that station, state and interstate. That explains one of the vital differences in the method heretofore followed and the method that has been followed in these exhibits. This terminal cost that we are analyzing has been built up in that way." (R. 88, 89.)

We will now take up the evidence in connection with the representative character of the two months in which the test was made. A test of this character is necessarily limited in time. It can not be prolonged indefinitely on account of the very large expense involved. The important matter is the selection of a representative period in which to make the test.

On this point the testimony of Mr. Nay was taken, and, in connection with his evidence, we deem it proper to call attention to his well known character and qualification to speak on such a subject. His experience in railroad service began in 1883 as statistical clerk in the accounting department of the Missouri Pacific Railway Company; he later became traveling auditor for the St. Louis Southwestern Railway in Missouri, Arkansas and Louisiana, and later chief clerk to the general auditor of that road. For a few years he was auditor of the Minneapolis & St. Louis and the Iowa Central railroads. Since 1903 he has served with the Chicago, Rock Island & Pacific Railway Company as assistant comptroller, general auditor, and, during the last five years, comptroller of that system. He is everywhere recognized as a man of great probity of character and of unusual skill and ability, as is indicated by the station he has reached in the line of his employment in railroad service.

He testified that he thought the test period used fairly represented the conditions throughout the year for the purposes for which the test was made; that the months of November and December were fairly average months. That a similar test was made on the lines of the Chicago, Rock Island & Pacific Railway; it was first made for two months covering

September and October. The results of this test were to be used in a case pending in Oklahoma involving rates in that State. The hearing of the case was postponed, and the test continued through the months of November and December, and a comparison of the work showed that the results of the four months were not substantially different from those of the two months; that no conclusion, or element, of the two months would have been different from what it was on the basis of the four. He regarded the months of November and December, if anything, as rather favorable to the State, owing to the large movement of cotton in those months, practically all of which is interstate traffic and would add to the volume of that traffic over other periods in which but little of that commodity moved; that the tests are for the purpose of determining the relative proportions of intrastate and interstate, and through and local business, and when you cover a period of two months you have a pretty representative period in almost any part of the year, unless you select the smallest or the largest month. The test period is not an attempt to establish that the earnings are going to be more or less. Its object is to fix a cost relation between the different classes of traffic which exists in other periods. I believe that when the figures are compiled, with all the detail that is provided in this formula for a two months period, it is fairly representative of the business as it runs along from year to year, unless it could be shown that conditions entirely different existed in other periods. Of course, it would be more satisfactory if we had the results of a whole year, but it would cost probably a million dollars to do it. When we have found by actual experience that the four months result has turned out to be substantially

the same as the two months, I think I can safely say that the two months are representative. In speaking of conditions of operation and traffic which should be considered in determining the normality, or representative character of the period employed in making the test, Mr. Nay stated that there should be similarity in the following conditions:

Similarity of mileage of the road in the two or more periods.

There should be similarity in the load, or number of tons and passengers per train.

In the average length of haul of freight or passengers. If that has remained substantially the same, it would indicate a similarity in the traffic conditions.

The relation of the empty car movement to the loaded car movement should be considered, and there should be a similarity in that respect. If there were a decided difference in that percentage from one period to another, it would indicate that there was some difference in the conditions in the two periods. If they are substantially the same, that would indicate similarity.

There is also the relation of the intrastate and interstate traffic. If they are substantially the same, that is, if substantially the same percentage of the total traffic was intrastate and interstate, it would indicate similarity of conditions.

Another matter is the proportion of the expenses, and the traffic, in the State to the total of the road. If in one period the expense should be, say, 15 per cent of the total, and the traffic should be, say, 18 per cent, and in another period the expenses

should be 13, 14, 16 and 17 per cent, and the traffic be within a few percentages, it would indicate similarity of conditions. Possibly there may be others, but those mentioned are what occurred to me when I gave the matter thought. It is not expected that in operating statistics different periods would be just the same, but they should be similar. No one of the conditions standing alone could be controlling, but they should all be taken in connection, and if, taken together, the relation between the road mileage was about the same, between intrastate and interstate, the empty car mileage and the loaded, etc., were the same, then I should think one period might fairly be taken as representative of another. He was then asked what the effect would be on the expense per ton mile in the two classes of traffic, where the intrastate haul remained the same, and the interstate haul was shorter in one of the two periods than the other, and testified that a greater proportion of expenses would be assigned to interstate in the period of the shorter haul, and gave as a reason the fact that the expense increases as the average length of haul is shortened. (R. 328, 380, 441.)

Mr. T. A. Hamilton was examined at some length on the subject and testified that he made investigation for the purpose of testing the normality in the movement of freight traffic during the various periods covered by the exhibits in this case. The results of his investigations are embodied in Exhibit 34, which shows the average miles per freight car per day made on the railroad for the fiscal years ending June 30, 1908 to 1913, inclusive; also the four months ending December 31 in the years 1907 to 1913, inclusive; also for the months of November and December of the latter year, which was the

test period. There is no material variation shown in these exhibits, the fluctuations not exceeding two or three miles on an average, which is negligible. In November and December, 1913, the average per day was 22.29 miles, while during the four months ending December 31, 1907, it was 22.18. He testified that the table embraced all of the cars that were on the railroad, whether moving or standing still, and all the mileage that was made each day by all the cars which actually moved, and that there could be no better index of the normal movement of freight traffic than the average miles made by the freight cars each day. He further testified that he knew from his own knowledge that there was no congestion or abnormality.

The percentage of empty freight car mileage to the total freight car mileage in Arkansas during the four last months of 1907 was 29 per cent, and during November and December, 1913, it was 29.41, being practically the same.

Exhibit 37 shows the road mileage operated in Arkansas during these various periods, and it is practically unchanged, there being an addition of about 5½ miles in the year 1911, and an increase of 20 miles on the entire railroad, thus showing there had been no change in the territory served by the road.

Exhibit No. 38 shows the train miles, net tons, revenue freight one mile, and revenue passengers one mile, per mile of road per day in the State of Arkansas, and Exhibit 39 shows the average haul of freight and passengers, intrastate and interstate, in the State during the periods covered by the exhibits, the latter exhibit being in the form of a graphic chart.

The witness called attention to the fact that this exhibit did not show the average haul for the months of November and December, 1913, that data having been shown for the six months ending December 31, of which those two months were a part, and explained that the factors necessary to produce the average haul figure for the months of November and December were not available. He was asked to explain the bearing these two exhibits have upon the question of normality, and stated:

"On that general proposition I think it should be said that nothing short of an almost miraculous coincidence would produce the same operating conditions upon any given railroad or section of railroad in any two periods, that is, exactly the same operating conditions. There must always be some difference in various periods. Such differences are shown in some of the exhibits that we have here, and, perhaps, notably in these two, but these differences must be considered, it seems to me, not in and of themselves, but in the light of their effect upon the problem that we are endeavoring to solve here.

We have taken the months of November and December, as has been previously explained in the record, as a test period in which to determine the excess cost per ton mile and per passenger mile of intrastate over interstate business. That is all we have used that test period for. It was intended to supplant the expert opinion, or the judgment, of railroad men, that intrastate cost so much more than interstate, as a matter of conjecture, or as a matter of experience, if you will, but we used this test period solely for that purpose to determine the percentage of extra cost of intrastate over interstate traffic, and we have carried those percentages back through all of these other exhibits, applied them to the ton miles and passenger miles in dividing the cost in the other years all the way back to 1907.

Exhibit No. 38, the one I have just offered, shows the train miles, ton miles and passenger miles per mile of road per day in Arkansas.

If you compare the test period of November and December, as shown in this exhibit with, for instance, the four months

ended December 31, 1907—that is, November and December—you will note that four freight trains per mile of line per day hauled 1,280 tons, net, per mile of road per day, of revenue freight. That is an average of a little over 320 tons per train mile as against an average of the 230 tons per train mile in the four months ended December 31, 1907.

It will also be noted from the exhibit that operating exactly the same number of passenger trains per mile of road per day, that is, four, both in November and December, 1913, and in the four months of 1907, we hauled an increase of 74 passengers per mile of road per day in November and December, 1913, as compared with the four months of 1907.

Both of these comparisons, freight and passenger, indicate in a large way a cheaper cost per unit of traffic handled in the test period in November and December than obtained in the four months of 1907. Of course, that applies to all traffic, and there the intrastate and interstate are mingled in these tons and passengers on these trains that I have referred to, and it may be suggested here that we have offered nothing which will show the same relative cost between intrastate and interstate per ton mile and per passenger mile in these two periods.

If we turn to Exhibit No. 39, the chart that shows the average length of haul, we will see it shows the average haul of one ton, the average journey of a passenger, both State and interstate, for all of these periods. It will be noted that in the last half of 1913, the calendar year which included our two months' test period, the average haul of intrastate freight was 25.75 miles, and that this same average haul of intrastate, or within 3-10 of a mile, occurred back in 1907, where the average haul was 25.44 miles—that is, the four months of 1907 that we are concerned with. But the average haul of interstate freight has dropped down in the six months of 1913, which include our test period, from 82 miles to 76 miles. There is a decrease of six miles. It seems to me that that indicates plainly that considering the greater train load and the resultant cheapened unit cost of all freight traffic, that the cost of all intrastate traffic per ton mile was less, as contrasted with the interstate traffic per ton mile, in the 1913 test period, than it was back in 1907. Therefore, so far as the freight traffic is concerned, the excess cost percentage of intrastate over interstate carried back from 1913 to 1907, has been too

small. There is no question in my mind but that intrastate freight hauled an average of 25 miles carries a greater excess cost per ton mile over interstate freight hauled 76 miles, than does intrastate freight hauled 25 miles over interstate freight hauled 82 miles, and, as I previously stated, the intrastate haul of freight was the same in the test period as in 1907, but the interstate haul was six miles shorter in the test period than in 1907.

The burden of extra cost attaching to shorter hauls is the direct result of having a lesser mileage to spread the two terminals over. That is the point I had in mind there. Summed up, the whole function of the railroad's transportation culminates in the haul of traffic. That, to my mind, typifies more than anything else the nature of the cost of the service, and where the haul is shorter the unit cost is necessarily greater.

We have here a distorted relation: Our test period shows that if we have an excess cost of intrastate over interstate which we have carried back into these other periods, if anything, it has been too small, at least as contrasted with 1907, and that is all that we have carried back from the test period, that percentage of excess cost.

As to the passenger traffic in this exhibit, virtually the same conditions as to length of haul appear in the two periods as in the freight service, and the same remarks would apply as to the percentage of excess cost.

On the other hand, if you consider the intrastate traffic by itself, the fluctuation and average length of haul, which is shown plainly in the chart in the exhibit—and that stands out prominently, that the average length of haul of intrastate passenger traffic in the last half of 1913, which included our test period, is the longest of any of the periods for which figures have been submitted, and for that reason we had the cheapest cost per unit of traffic, intrastate passenger, during that period." (R. 451, 452, 453.)

Exhibit 40 shows, in the form of a chart, the ratio of intrastate and interstate in the total freight and passenger traffic in the State. We will explain the effect of this exhibit in the language of the witness:

"This exhibit shows that the intrastate passengers one mile were a larger proportion of the total passenger traffic in Arkansas in the months of November and December, 1913, and also in the four months ended December 31, 1907, than in any of the full fiscal years shown on the exhibit. To one familiar with conditions in Arkansas, the reason for this is plain. The fall period of the year is undoubtedly the heaviest period of passenger travel in this State. This is proven by the fact that the total passenger miles, intrastate and interstate together, in Arkansas, for the four months ended December 31, 1907, amounted to 14,207,000 passenger miles. Multiplying that four months' figure by three to get the year's figure, you get 42,621,000 passenger miles, whereas the actual passenger travel in Arkansas during that fiscal year was only 40,800,000 passenger miles.

*Mr. Hill* (to the witness): You haven't that on this exhibit?

A. No, sir; it is stated in Exhibit No. 27, those figures for the four months. This shows that multiplying the travel in Arkansas for the four months by three, you get considerably more than the total actual travel for a year, and that will seem to prove conclusively that the fall is the heaviest period of travel in this State.

The total passenger travel in Arkansas in the two months, November and December, was 9,895,000. You multiply that by six to get a year's figure, and the result is 59,300,000 passenger miles, whereas the actual passenger miles for the year in which these two months were included was but 52,400,000 miles.

It is further evident that the fall and early winter months are the heaviest period of the year for intrastate travel along the same lines as indicated there, and, in fact, the chart shows it, but following the same line of thought as for the total travel it may be said that the actual intrastate passenger miles in Arkansas in the four months ended December 31, 1907, were 6,200,000 miles, in round figures. If you multiply that four months' figure by three you get a year's figure of 18,650,000. As a matter of fact, the actual Arkansas intrastate travel in that year was but 17,600,000, and relatively the same condition obtains in the two months' period of 1913, when you multiply by six to get a year's figure. It yields 24,000,000 intrastate

passengers in Arkansas while the actual travel for the year was less than 22,000,000.

That would seem to explain why the percentage of intrastate travel to the total travel in Arkansas was greater in these fall periods than it was for the whole year. It is probably true that the crops in Arkansas have been marketed by that time, that is, the greatest single staple crop of the State, and that the people are financially better able to travel at that time than they are at any other period of the year; at least, the amount of travel would seem to indicate that.

The difference between the percentage of intrastate passenger miles to the total in the test period of November and December, and in the four months ended December 31, 1907, is only 3 per cent, so that one would seem to be fairly reflective of the other. So far as this feature of the normality is concerned, I think that is a conservative statement.

Further, the test period of November and December used to determine the extra cost percentage of intrastate passenger travel over interstate may fairly be stated to have been a period which would show the minimum extra cost of intrastate travel for the reason that the entire cost of all passenger traffic, intrastate and interstate, was but 1.56 cents per passenger mile in these two months. That figure is deducible from the figure which gives the expense and the passenger miles for the test period in the exhibit." (R. 454-455.)

Exhibit 41 also consists of a graphic chart. It shows that in the last four months of 1907, 11.80 per cent of the expenses of the entire railroad were assigned to Arkansas, and that during the same period there was moved in the State 11.28 per cent of the total revenue ton miles of freight transported on the entire line; that during the same period the Arkansas proportion of the total passenger traffic of the entire railroad was 10.25. These traffic figures are expressed in ton miles and passenger miles. During the test period (November and December, 1913), the chart shows there was assigned to Arkansas 10.44

per cent of the total operating expenses, or 1.36 per cent less than the percentage shown in the last four months of 1907. At the same time it will be observed that the proportion which the freight traffic of Arkansas was to the freight traffic of the entire line was 1.8 per cent less in the 1913 period than in the 1907 period, while the Arkansas proportion of the passenger traffic of the entire line was one per cent more in 1913 than in the 1907 period.

Referring to these comparisons, Mr. Hamilton testified that:

"The variations in these percentages are small, but it will be noted that the proportions of revenue traffic moving in Arkansas run fairly well hand in hand with the assignment of expenses to Arkansas. This, of course, covers all business, freight and passenger, intrastate and interstate, the object being to endeavor to show that the assignment of expenses to Arkansas has been fair, considering the proportion of traffic in Arkansas.

"It will be noted, too, that so far as these fluctuations go, that where the proportion of freight traffic is smaller, the proportion of the passenger traffic is greater, that the proportions of expense assigned to the State run about level." (R. 456.)

Exhibit No. 52 contains a table comparing the maintenance of way and structure expenditures per mile of line in the State of Arkansas in the several periods covered by the exhibits with similar averages for the entire line of road, from which it will be seen that these expenditures run about level during all the periods, the expenditures for the two months in 1913 (November and December) being almost exactly one-half of what they were for the four months in 1907. In all the periods except the months of November and December, 1913, the charge in Arkansas per mile of line is a little in excess of

the average for the entire railroad, which is accounted for by the table on page 1 of the exhibit, showing a material excess in bridges and trestles in that State, in the maintenance of which a larger expense would necessarily be incurred. In connection with this subject we call attention to the testimony of Mr. Hamilton at page 538 of the record.

We have dwelt at some length on this point because the test is the foundation of the case, and it is important that every material fact in connection with it should be brought to the attention of the court. The evidence we have recited is wholly uncontradicted. The appellants did not attempt to controvert it or produce any evidence on that point. The exhibits referred to establish beyond question the similarity of operating conditions enumerated by Mr. Nay as proper tests for the purpose of determining whether the period in which the investigation or test was made was representative of other periods to which it was sought to apply the results.

The investigations in this case have been conducted in very much the same way that a manufacturer desiring to know the cost of producing the articles he manufactures would proceed. He arranges a cost accounting system concerning the facts of each operation or process, the time devoted to it and the labor expended upon it, on the spot where the manufacturing is conducted. This method is fundamentally sound because it studies the factors which reflect the use of the manufacturing plant in the production of its output, and gathers knowledge at the source. The Railroad Company in this case may be likened to a manufacturing business; it manufactures and sells transportation, and in the investigations made by it for

the purpose of determining the cost of producing intrastate freight and passenger transportation, it proceeded in the same manner as such problems are treated in commercial manufacturing enterprises. It gathered the data essential to a complete knowledge of the facts controlling the cost of producing transportation of various classes on the trains, in the yards and at the stations where the traffic is handled. Having ascertained the facts at first hand concurrently with the daily operation of the plant, or railroad, there only remained the matter of making a correct application to the cost problem of the information so gathered. That this has been accurately done is not controverted by the appellants. A railroad can not, like an ordinary manufacturer, carry on an investigation of this kind beyond a limited time, as the expense of conducting such a test on a large railroad continuously would be prohibitive, and for that reason, in making cost studies railroad officials necessarily have to confine themselves to a study of the factors influencing cost conditions, and the results, for comparatively short periods, which should be, and are, in this case, reflective of the ordinary normal operating conditions on the railroad. We submit, in conclusion, that the methods pursued in the investigations developed in this case are analogous to those employed in manufacturing plants, that the work was conducted with great care, and the results are as nearly correct, and as closely reflect the cost of the intrastate freight and passenger business, as it is practicable to make it.

It is proper at this point to say that all the records of the Railroad Company, including the calculations and detailed working data prepared in connection with the test, as well as the regular records, were submitted to and checked by the

appellants' accountants, extending over a period of several months, and that no errors of any magnitude, or having any noticeable effect on the results, were developed by them.

The learned counsel for the appellants discusses this question from the standpoint of normality of the four months in 1907, rather than the test period in the last two months of 1913, assuming, as we understand the argument in their brief, that the value of the test must be determined by the normality of the former rather than the latter period. They also take it for granted that the appellees predicate their case wholly on the evidence as to the inadequacy of the earnings of the last four months in 1907. Counsel totally misapprehend our position; the purpose and effect of the exhibits filed, and the evidence introduced by appellees as to the effect of the enjoined rates, was to cover all the fiscal years from 1909 to 1913 and the four months in 1907. It was obviously necessary when appellees made their application for injunction at the commencement of the proceeding that they should select a prior period in which to make their preliminary proofs. For that reason, the four months in 1907 were selected, because they were regarded as the first representative period after the rates complained of had been put in force. It was in that way that that period came into the case. Appellees felt, however, that it would not be proper, or meet the requirements of the case, for them to confine their evidence, as to the effect of the inhibited rates, to that period after so long a lapse of time had occurred before the hearing, and for that reason they attempted to cover the entire period in which the records of the company were available, from the institution of the suit to the end of the fiscal year preceding the test. Exhibits 22, 24-26 cover

all these periods, exhibit 27-A covering the period in 1907. Evidence was introduced by appellees in an effort to show, by the actual movement of business, that the period in which the test was made was reflective of the traffic conditions that existed in the preceding periods, and for that purpose testimony was introduced showing in what respects there should be similarity of conditions in the different periods. These conditions having been established by the uncontradicted evidence, the exhibits taken from the records of the company, which are admitted to be correct, were filed and are fully explained, and the effect thereof pointed out in the testimony of Mr. Hamilton which we have quoted, and which we submit establishes such similarity in the movement of traffic, and in general operations affecting traffic, such as the empty car movement, the length of haul, the road mileage, the train miles per mile of road per day, and other conditions pointed out, as to leave no room for doubt, or reasonable question, as to the normality of the test period as compared with the preceding periods covered by the exhibits; and no reason has been shown why the traffic of the railroad should not have run evenly and have been characterized by the same general conditions, throughout the five years covered by the exhibits and evidence. The condition of the country, and of business generally during that period, save for a short depression which began in the latter part of 1907 and ran through the year 1908, which is not covered by the exhibits, was normal. There was nothing to disturb the even balance of trade or to create any unusual or abnormal fluctuations in the movement of traffic throughout the country. It would be strange if under these circumstances there had not been such similarity of conditions in traffic as

is developed by the statistics and the evidence produced in this case.

In this connection counsel quote the following language in the Minnesota rate case (230 U. S. 559):

"The wide variation in results obtained on the different hypotheses, each of which is earnestly supported in argument, illustrates the necessity for the keeping of suitable accounts, at least during typical periods, which will furnish correct statistical information bearing upon the cost of intrastate transportation as compared with interstate, instead of leaving a matter of such intricacy to general expressions of judgment."

The court, in the language used, was referring to the effort in that case to establish the cost relation of intrastate and interstate transportation by opinion evidence, instead of gathering suitable facts by tests made during typical periods for the purpose of establishing the difference in cost on the basis of facts, rather than conjecture. The record in this case shows that in selecting a typical test period, and in making tests from actual daily operating conditions, and in justifying the representative character of the period, and the results of the test by actual evidence based on ascertained facts and statistics taken from the record of the railroad company, the appellees have tried to follow the suggestion contained in the quotation, and have collected such detailed facts and information bearing on these questions as has never been presented in the record of any case of this character before.

## "STIMULATION OF TRAFFIC."

Counsel take a curious position in regard to the effect of lower passenger rates in the way of stimulating travel. In appellees' exhibit 61, in which the earnings and expenses,

including taxes, rentals, hire of equipment and every class of expense, and the return upon the value of the property for the four years 1910, 1911, 1912 and 1913, are set up, it was necessary, in order to ascertain the effect of the inhibited freight and passenger rates, to deduct the difference in the revenue that had accrued from the transportation of freight and passengers between the rates actually charged during those periods, as shown by exhibit No. 33, and what would have accrued had the inhibited rates been charged. Counsel say the diminution of the revenues for the purpose of placing them on the basis of the rates in controversy was erroneous because, forsooth, if those rates had been in force it might have stimulated traffic and increased the number of passengers, and the tons of freight, moved during those years, while as to the four months in 1907, when the inhibited rates were in force, they say the comparison is unfair because the exhibits demonstrate that that period was not typical. Just on what ground such an assertion can be supported is past our comprehension.

It is manifest that the only way by which the effect of given rates in the way of return on the value of the property can be determined is by applying those rates to the traffic as it exists at the time, and the question as to whether the lower rate affected the result of such application by stimulating traffic, and if so, to what extent, must be determined by later developments. Realizing that it was a proper subject of inquiry in this case, the appellees introduced evidence for the purpose of throwing light on the question as to the effect the inhibited rates would have in increasing traffic and thereby

making up, by a larger volume of business induced by the lower rate, for the decrease in revenue resulting from the use and application of that rate. Mr. Hamilton testified at some length on this subject at pages 457-459 of the record and, in connection with his evidence filed exhibit 42, which contains a statement of facts and a table showing the difference in intrastate passengers in the months of August, 1912, and June, 1913, when a rate of three cents was in force, and August, 1913, when the rate was two cents. Counsel, in discussing this table, have fallen into the error of assuming that the second and third columns which appears on page 3 of the exhibit, represent different sales, and say the court below fell into an error by using only the ticket sales contained in the last column. The court was right inasmuch as the first column contains the number of tickets sold, the second column the number of cash fares paid at the stations mentioned, and the last column, the one used by the court, represents the total, and therefore cumulates the two classes of passengers, namely, those buying tickets and those paying cash fares on the trains. The court found, at page 924 of the record, that at certain stations mentioned as interior stations, namely, Jonesboro, Hoxie and Ashdown, a large part, if not all, of the excess, which was from 28 to 33 per cent at the different stations, was attributable to the fact that those towns were near the border, and so located that there was a large interstate travel to and from them, on which the rate was three cents, as against two cents for intrastate travel, and that therefore the same conditions which existed at the border stations would naturally exist at those points. The facts upon which the finding was made are all in the record, and the

court was obviously right in its conclusion. Mr. Hamilton's testimony makes it perfectly clear that the greater part of the increase in intrastate traffic was produced by the purchase of intrastate tickets, or the payment of intrastate cash fares, by interstate passengers, and even with an increase of 21 per cent in intrastate passenger miles there was a falling off of intrastate passenger revenue of 14 per cent.

This demonstrates the fact that even if all the increase, or stimulation of travel, had been *bona fide* intrastate and attributable to the lowering of the rates, it would not have increased the earnings, and the only purpose for which such an inquiry is proper in this case is to determine whether the loss would be made up by increased traffic. Mr. Nay, who had a similar experience on the Chicago, Rock Island & Pacific Railroad, corroborates Mr. Hamilton's testimony (R. 333 to 336, and 436 and 437.)

In opposition to the records and testimony of the appellees, the appellants produced the testimony of Mr. Simson, who testified that he did not think it possible to estimate with any accuracy the results of changes in rates; that he did not know anything about the traffic conditions on the St. Louis & San Francisco Railroad in Arkansas, or on any part of that system of roads, and, further, that it was impossible, when you have the statistics of a certain number of passengers traveling a certain number of miles for a given year under a through three cent rate, to assume that under a two cent rate just exactly the same number of passengers would have traveled that same number of miles. No such assumption has been made. The records have been introduced, and in fact a

test was made, for the purpose of determining whether the increased traffic was *bona fide* intrastate, and the results of that test are developed in the testimony of Mr. Hamilton, based on reports made by conductors and traveling auditors, which can not be overcome by general assumptions and conjectures of a witness who admits that he had no knowledge whatever in regard to existing conditions. That is harking back to the old methods that were condemned in the opinions of this court in the cases reported in 230 U. S. Mr. Simpson further testified that he was never a traffic man and had no knowledge or experience in regard to traffic conditions, or as to the effect of changes in rates in stimulating traffic. His testimony will be found at pages 792 and 793 of the record. When asked the effect of a change in freight rates, he said it would probably have the same effect, as a change in the rating would undoubtedly affect the direction of traffic. And counsel referred to cases before the Interstate Commerce Commission where it was shown that a change of freight rates would deflect traffic from one jobbing center to another. The suggestion of the witness, and the cases before the Interstate Commerce Commission referred to, are where changes result in different and unequal rates, but where the entire scale of intrastate rates are changed uniformly, and their relation maintained throughout the entire territory, the change would not produce the effect contended for. The inhibited passenger and freight rates were confined to the State of Arkansas and applied to all railroads and all intrastate business. The change was uniform in its operation and effect upon all railroads, and all freight traffic, and it needs no argument to show that under such circumstances, where the change is uniform, and the rela-

tions unchanged in every respect, the movement of traffic would neither change in direction nor be deflected.

Counsel cite and quote from the opinion of the Interstate Commerce Commission in the Western Passenger Fare Cases, 37 I. C. C. 1, in which the commission found that three cents was a reasonable interstate rate in Arkansas.

In Interstate Passenger Fares Cases, 31 I. C. C. 532, decided on July 18, 1914, in which proceeding the Arkansas Commission was a party petitioning for a decrease in the three-cent interstate passenger fares on railroads in that State, the Interstate Commerce Commission held that that rate was not unreasonable in the State of Arkansas. In examining the question the Commission found, by taking one of the exhibits and comparing the 3-cent fare period with the 2-cent fare period, that it showed an increase during the latter period, and while the 2-cent rate was in force. From the same table a similar comparison showed the opposite result, and other evidence introduced in the case, showing the extent of passenger travel in thirteen States, showed that the passengers carried one mile increased in practically the same ratio in five States where there was no change in the passenger fares, as it did in eight States where the fares were reduced. Comparing two months' business, January, 1913, and January, 1914, in the former of which the fare was 3 cents, and the latter 2, showed a decrease in revenue during the 2-cent period. After citing these facts, the opinion states that they illustrate the fact that there are so many conditions determining the extent of passenger travel that correct conclusions can not be reached from a consideration of any one condition alone; that population was increas-

ing in the States, representing a greater density of population, and making more travel. Periods of prosperity or reverses affect the total volume of travel. That the comparison of revenue between 2 cents and 3 cents periods prove nothing in favor of the lower rate, because the evidence clearly shows a large number of interstate passengers did not pay the higher interstate fare, but reticketed at border stations, by which means the passengers paid the interstate fare for only a short distance, and what appears in the carrier's account as intrastate passenger revenue would, under normal conditions, be interstate. The Arkansas railroad lines were involved in that litigation, and the facts developed in this case on this point are similar to those recited by the Commission.

## APPORTIONMENT OF MAINTENANCE OF WAY, "LINE" EXPENSES BETWEEN THE FREIGHT AND PASSENGER SERVICES.

The expense of the upkeep of the track, track structures and appurtenances of a railroad are known as the Maintenance of Way and Structure Expenses. Under the formula, filed as Exhibit No. 1, and as explained in detail in Exhibit No. 2, all such expenses of the St. Louis and San Francisco Railroad as could be definitely assigned to the freight or passenger services or to "line" or "terminal" service, were so assigned, based upon data of actual expenditures for such maintenance, kept separate by individual tracks and structures, through records prepared by the men in charge of such maintenance work. This detailed allocation left for solution only the problem of dividing between the freight and passenger services the maintenance of the main line track, or, as it is called in

Exhibit No. 1, "line" track and appurtenances, which are used in common by both the freight and passenger services, which amount to 21 per cent of total operating expenses (Exhibit 9).

It was desired to divide the common "line" expenses for maintenance of way and structures upon basis of the *use* made of the common facilities, by the freight and passenger services respectively. The use of the "line" track of a railroad by the freight and passenger service consists of the movement of weight—that is, engines and cars and their contents—over the required distance at the speed which the nature of the traffic requires for its movement, and under the service conditions and vicissitudes with which railroad operation has to contend. It became necessary, therefore, to find a unit of measurement which would most nearly reflect all of these elements of the service rendered to the freight and passenger traffic respectively, and thereby to reflect the *use* made by each of those two classes of traffic of the "line" track and structures of the railroad.

It is axiomatic that if engines be properly designed—as American engines are conceded to be—the power of the engine, or the effort which it can exert, is directly in proportion to its size.

This power is utilized either in the pulling of weight, or the running at higher speed, or in combating service conditions which operate to retard movement.

The best index of the size of an engine is its weight. At least, this is the best common unit upon which the service capabilities of two or more engines may be compared.

Inasmuch as all service rendered to the public by a railroad, in the rendering of which the track is used, must be expressed in terms of distance, or miles over which traffic is moved by locomotives, the weight of the engine (indicating its size) multiplied by the miles it has been operated in freight and passenger service—in a word, the "engine ton mile"—is undoubtedly the most accurate measure of the *use* made of the main line track of a railroad in the conduct of the freight and passenger traffic respectively.

The reason for using that factor is succinctly stated in the testimony of the witnesses Nay and Hamilton. Mr. Nay testified:

"We had a great deal of discussion as to the best basis to adopt in connection with this division; in fact, I presume that that part of this formula was given more attention than any other part. A study was made of the engines used in freight and passenger service, and it was found that the passenger engines which hauled trains at a high rate of speed were practically of the same weight as the large freight engines which moved slower, but pulled heavy trains. In some cases, the passenger engines of those high speed trains are heavier. We found in studying the situation that the weight of the engine really represented the service performed as to weight and speed.

In the old formula it was urged many times that speed was not considered. The argument for using the train mile basis was that the extra speed of the passenger train offset the greater weight of the freight train.

Q. Under the old method?

A. Under the old method, but, as I say, in studying the conditions we found that the weight of the engines actually

did reflect the speed, in the case of the passenger engine, and in the case of the freight engine the weight which was pulled, and also the speed; that is, for greater speed and heavier weight you must have a heavier engine; for slower speed and a lighter train, you must have a lighter engine. Then, again, when it comes to that portion of your expenses—the ties, rails, track material and ballast, to a certain extent the heavier the engine the greater the damage done to the track, so that the weight there is an important factor.

We frequently strengthen bridges, put in heavier rail and additional ballast because of heavier engines put on, not because of heavier cars.

Taking all those things into consideration, we decided that the engine ton mile basis was the best basis that we could get which would represent the use, and by use combining speed as an element of use with weight and the distance traveled. Hence, the committee which framed this formula decided on the engine ton mile basis, and it has been used." (R. 309.)

Mr. Hamilton testified:

"We took the engines which actually hauled freight and passenger trains, and the miles they ran, and multiplied the miles made by each engine drawing the passenger train by the dead weight, the total dead weight of that engine, making an allowance for the contents of the engine tank or tender estimated at two-thirds of its carrying capacity in water and coal. That is, we took the weight of the engine complete, in running order, everything above the rails, and multiplied it by the mileage the engine made, freight and passenger, *each engine separately,* building up the freight and passenger engine ton miles. * * * It has been stated, that only a minor portion, varying from twenty-five to ten per cent, of the actual up-keep expenses of the track is directly traceable and chargeable to the wear and tear occasioned by running trains over it," and that the other ninety per cent to seventy-five per cent of maintenance was the result of elemental action, the erosion of the bank, rotting of ties, deterioration of rails, deterioration of fences, buildings, etc., and that would go on if you never ran a train over a track, to a large extent.

We felt, that the best basis on which to divide maintenance of way, and one that would reflect a proper division both of

that portion which is chargeable to the direct wear and tear by reason of the running of trains, and that portion which would accrue if you ran no trains, would be some unit that would really measure the use we got out of the track in freight and passenger service. There was only, so far as we could see, one common ground on which the freight and passenger service could meet, and that was the engine ton miles, and for this reason: The weight of your engine denotes not only its type, but the size and character of the train that you expect it to haul. It is conditioned to the service required of it.

The train behind your passenger engine consists of fewer cars than the train behind your freight engine, but your passenger engine is required to run, necessarily, at a greater speed. Your freight engine is required to pull a heavier train at a slower speed. It seems to us that the size of the engine being conditioned to the speed and weight combined, and expected to be met with in your freight and passenger trains, respectively, really was the best common unit of measurement of the use that you got out of your track as between freight and passenger service, because you use your track to pull trains of varying weights, at varying speeds, the locomotives in the freight and passenger service being accommodated as to the speed and the tonnage that you must handle." (R. 109, 110.)

Again, beginning on page 210, the same witness said:

"We assumed the size of the engine, indicated by its weight, indicated the weight and speed of the train it was expected to pull, and that was the use that the train got out of the track, regardless of how the necessity for its up-keep and repair arose, whether elemental or straight wear and tear." (R. 210.)

J. A. Frates, the general superintendent of the St. Louis & San Francisco Railroad, also testified on this subject. This witness testified that he had an experience of about thirty years in railroad service; had been fourteen years with the St. Louis & San Francisco Railroad as assistant superintendent, superintendent, and general superintendent; that he su-

pervised the engine ratings and was responsible for knowing that they were carried out in the operation of the road. That the ratings shown on the working time tables are obtained by actual pulling tests under normal conditions, and represent the maximum tonnage that can be hauled under such conditions at a speed of ten miles an hour. He was asked if it was practicable to reach the maximum potentiality in the average every-day practice, and stated that in operation the potentiality of the engine was reached, but not the tonnage maximum. He shows that an engine may be working at its full potentiality where the conditions are such that it can not haul its maximum tonnage. In speaking of the effect of speed in connection with efficiency in the operation of engines, he testified that an engine which would pull 100 tons ten miles an hour would probably have to reduce the tonnage one-half to attain the speed required in an expedite movement. Mr. Frates explained in detail the effect of fluctuations in the condition of the weather and other elements that affect the capacity of engines. He testified that the practice is to assign a certain number of engines to a certain district to move all the business in that district. The volume of traffic may be heavier in one direction than the other. In such cases the train moving in the direction of the volume would move loaded and the train moving in the opposite direction to the volume would move light, or with reduced tonnage, and in such cases it is necessary to use an engine of the size adapted to the larger volume of the traffic in the reverse direction. He also described the local conditions that might affect loading on train runs, and explained how it often occurs that a train may start out of a terminal with light loading and be required to pick up at local

stations along the line until it gets its maximum load. He also testified that in addition to the responsibility of the general superintendent the company provides a superintendent of locomotive efficiency, who is in direct charge of that particular feature and has an assistant on each division called "Assistant Superintendent of Locomotive Efficiency." It is the duty of these officials to fit the engines to the work that is required of them and to get the greatest efficiency possible out of the engines. They are held responsible for producing the most favorable results, and are required to show their performance, and if it is not 100 per cent, to explain why not. Their reports and explanations are followed up and if they are not reasonable, the officer is held responsible.

Referring to passenger service, he testified that the officials of the company usually assigned passenger engines with reserve power to meet conditions that may arise, as it would not do to put an engine on a passenger train that would work to its maximum, because if the engine was called on to handle an extra car, or adverse weather conditions should arise, it might not be able to handle the train satisfactorily. That the number of cars in passenger trains vary in accordance with the exigencies of the service. That the weight of the engine reflects its tractive power; that the size of the engines on the St. Louis & San Francisco Railroad were conditioned to the weight and speed of the trains they were expected to pull, both in freight and passenger service, in the interest of economy, for if we put an engine on a train with more tractive power than is necessary it is a waste of power, and therefore money, and so in the interest of economy we try to apply what power is necessary, and not to apply any more than is abso-

lutely necessary to take care of the requirements. Mr Frates' testimony begins at page 805 of the record.

The objection of the appellants to the use of the engine ton mile as a factor for dividing this class of expense between freight and passenger is that freight engines do not, upon every trip, in every direction and under all of the service conditions, haul 100 per cent of the gross weight that the engine is theoretically capable of moving and that, therefore, the size of the engine does not uniformly represent the use made of the track in the movement of freight, or in the service rendered to the freight traffic.

Railroads endeavor to produce freight transportation—service consisting of the movement of weight over distance—for the least possible cost per unit of traffic. With this object in view, engines in freight service are tested upon each section or district of the railroad to determine their maximum capability to move weight. This is known as the engines "rating."

The costs incurred by the railroad are incurred largely per train mile. That is to say, the cost of operation is no greater per train mile as to many classes of expense, for a heavy train than for a light train. The railroad, however, is paid for the service it renders, by the ton mile. Therefore, the greater the number of tons moved in a single train, the cheaper the cost of transportation per unit of traffic which the railroad charges freight upon, and the greater the net revenue accruing to the carrier. It is with this object in view that the test of engines, previously referred to, is made and the maximum capacity to move weight fixed for each engine. This then is

set up as an efficiency mark to be aimed at by all operating officers of the railroad, as is explained by the testimony of the general superintendent of the railroad, Mr. Frates.

Commercial necessities will not permit that the railroads shall move freight in maximum train loads at minimum speeds. The public requires service of a higher character and more expeditious than the railroad, from the standpoint of economy, can render. Perishable freight must be moved rapidly. Trains must be run with lighter loads to accomplish that end. The movement of freight must be carried on with more or less expedition, regardless of weather conditions. To overcome such conditions and still maintain the requisite speed, trains must be run lighter than economical operation would dictate. Freight must be moved over mountain grades, and to meet this condition, moved in lighter train loads than in the more level country. At times the preponderance of traffic moves in one direction over a division or district of the railroad, and engines must be run back in the opposite direction with less than a full train load in order to be available for service in the direction of the volume of traffic. All of these practical service conditions operate to defeat the effort of the carrier to always place behind its freight engines 100 per cent of the gross weight such engines could pull, under the most favorable and ideal conditions.

The appellants finding these efficiency train load tables, or engine ratings, of the railroad among its records, used them as a basis for the contention that, because the engines did not always pull over every mile they traversed in train service the full maximum load indicated by these rating ta-

bles, the size of the engine did not reflect the service it rendered to the freight traffic, and the use that traffic got out of the track. They ignored entirely the element of speed which is a part of the freight service the carrier furnishes to the public, and a very important part of the use that the freight service makes of the track. They ignore entirely the weather, gradients and other service conditions which have been described, and which locomotives have to overcome in using the track for the benefit of the freight service.

The only witness produced by the appellants on this point was L. S. Mayer, who testified as an expert.

Mr. Mayer introduced an exhibit marked "CC," which was taken from the company's train load efficiency records, from which he endeavored to show that the engine ton mile was not a proper factor for dividing maintenance of way line expense between freight and passenger, because the freight engines did not, in the period represented by his exhibit, pull 100 per cent of their time card theoretical maximum rating. His testimony contains much repetition and is too voluminous for us to cite it in detail, but we wish particularly to call attention to the fact that in all his criticisms of the engine ton mile he ignored the fact that the speed of the train constitutes a factor in the use of the track as well as the weight of the train. He did not have sufficient knowledge to understand the effect the fluctuations necessarily incident to the traffic would have in the practical operation of the railroad's facilities. He was absolutely ignorant of the manner in which speed affects, and is a leading factor in the efficiency and performance, of an engine. This is abundantly shown through-

out his testimony from beginning to end; and hence that element was totally disregarded by him, while every other witness who testified on the subject, including such men as Mr. Symons and Mr. Frates, explained why it was one of the most important and determining factors. The evidence shows that an engine of a given rating today may haul thirty cars at the rate of twenty miles an hour. It may be called upon tomorrow in moving expedite freight, to haul five cars at a high rate of speed. It is performing to its full efficiency in both cases because its efficiency and pulling power are largely controlled by the speed at which it runs. He overlooked the fact that the engine rating is simply a marking of the efficiency of the engine under ideal conditions, and that what is expected of the operating officials is that they will get out of each engine the efficiency of which it is capable with reference to the service conditions that exist in its operation. It is in this way that the engine represents the train it pulls in all cases, whether loaded to its potentiality or not. Mr. Mayer controverts this proposition, and for that purpose produced the table contained in Exhibit CC. He was asked at page 647, what elements or factors there were for determining the power of a locomotive, and stated that he could not testify as a mechanical expert, and at page 647-648, he was asked what is tractive power, and answered, "I do not know what the technical definition of tractive power is." Again at page 652:

"Do you know what is meant by the ruling grade of a railroad in the rating of an engine?

And answered: "No, sir; I do not know anything about the technical construction of these rating formulas."

And at page 653, he testified he did not know what mechanical knowledge the rating shown in the company's record was made up on. And again he was asked at what speed an engine is expected to haul a load at the rate indicated on the time card, and answered:

"I do not know what speed they used here."

"Q. Does it represent more speeds than one?"

"A. I do not know on what basis they made it up.

"Q. Does it represent variable speeds?

"A. I do not know."

He was asked:

"Do you know, or can you tell me, whether that (referring to the rating) represents the drag load the engine can pull on the ruling grade in the district in which it operates?

"A. I do not."

"Q. Does not the rating in the time card reflect the load the engine is supposed to be able to move simply at drag speed on the ruling grade of that particular district?"

In answer to which he said:

"I do not know. All they show is the rating, and by their exceptions they show they expect every engine to pull that rating."

"Q. Would the engine be expected to haul the rating shown on the time card at any variations that may occur in the speed?

"A. I do not know what basis they made up the tonnage rating of engines on, but it is presumed to be as nearly as possible the actual requirements, so far as the movements of traffic is concerned. There are some exceptions which I quoted to you."

"Q. Take speed."

"A. *At the speed the management thinks proper.*

"Q. Suppose an engine is rated by the time card at 1,500 tons. That means it can pull 1,500 tons at drag speed over the ruling grades of the district?"

"A. That is not necessary for my information in this case."

We direct special attention to the testimony of this witness on pages 641 to 711.

We beg the indulgence of the court in presenting these extracts and references to the testimony of this witness. The subject is one of importance, and what we have quoted from his testimony, and other evidence referred to in the record, so clearly indicate his ignorance on the subject, and the fact that the views expressed by him were not based on an understanding of the conditions affecting the service, that we feel that in justice to our case we should bring the matter to the attention of the court. This witness produced and read extracts from a paper which he stated was from the report of the American Railway Engineering Association. He spoke of it as a paper that came to him from the Interstate Commerce Commission, giving the impression that it was a paper approved by that body. It turned out to be a letter written by a member of the Engineering Association, giving his individual views as to a proper factor for the apportionment of this expense, and was simply published along with the proceedings of the meeting of the association.

Mr. Mayer gave as his opinion that that part of the expense which results from the use of the track, say 10 per cent,

should be divided on the gross ton mile basis, and the remainder on the train mile. (R. 703, *et seq.*). After which appellees had Exhibit No. 60, containing a comparison of the effect of applying the basis suggested by Mr Mayer—10 per cent wear and tear, 90 weather stress—with the engine ton mile basis used by the Railroad Company in this case prepared. This exhibit shows that the net effect of using the gross ton miles as to the 10 per cent is to increase the freight expense $1,253.31 and diminish the passenger expense in the same amount.

He further testified that the equating method had the effect of carrying back into the year 1907 the engine ton mile percentages resulting from the actual engine ton miles in 1913. He said on this point:

"The result of using the 1913 engine ton miles for the two months which are in this formula and applied back to 1907, results in the passenger being charged too much and line, maintenance and freight too little, just using the engine ton miles itself without regard to the value of it."

The matter was investigated by Mr. Hamilton and he made the folowing statements in regard to it when recalled to the stand:

"The result we got under our equating method—I was talking of maintenance of way expense—was practically the same, or exactly the same, as making the direct apportionment back there.

I don't think that perhaps I gave you all of the factors I had in mind. I did not mean to omit anything, but there is another element that I might have quoted to throw a little light on it.

Since we were last here I dug up, with much labor, dispatcher's sheets for the Arkansas territory for 1907. They told me many times that they did not have them, but I per-

sisted until I found them stored at Memphis, or, rather, most of them.

I worked up the engine ton miles for those four months just as we have done it here. We assigned back yonder to maintenance of way, as I said this morning, under the new formula, 58.44 per cent of maintenance of way expenses to freight.

The engine ton miles, as we worked them out actually for those four months—the same as we have done for the 1913 test period, are 60 per cent of freight, within 2 per cent of our assignment here. There we have assigned just a little more. So the equating was not at all a bad proposition when you get down to the concrete effect of it.

I meant to make mention of those engine ton miles this morning but it got away from me.

I also have the data, and the train sheets themselves are available here in St. Louis now, if it is desired to see them." (R. 878.)

Mr. Mayer's experience in railroad service was not such as to qualify him to testify as an expert. He admitted he had no knowledge of civil or mechanical engineering and had never occupied any administrative, supervisory or executive position in railroad service. His own statements showed that he was unacquainted theoretically or practically with the matters about which he testified, while at the same time he testified with a greater appearance of self-confidence and in a more dogmatic manner than witnesses who possessed far greater qualification.

We invite attention to the comments on his qualifications, and his evidence in the opinion of the court below at page 917 of the record.

Counsel refer to the recent decision of the Interstate Commerce Commission in the "Western Passenger Fares" case, 37 I. C. C. 1, as a ruling against the engine ton mile basis for dividing common maintenance of way expenses.

While the Commission used the items of operating expense appearing in I. C. C. accounts 80 to 87, inclusive, as the basis of division in the inquiry before it, it expressly stated that its decision must not be regarded as conclusive of the method that should be ultimately used. They say:

"We are using these direct train costs in this instance to determine the apportionment of unallocated expenses between passenger and freight because the objections to this method seem less forceful than those that have been urged against any of the other methods proposed."

Whatever weight the court may give the opinion of the Commission in a case directly decided by it under a similar state of facts, no great importance can be attached to the decision cited because it is not the final determination of the question by the Commission, and, so far as appears, the finding was not based on the same character of evidence as was applied in this case.

We have not seen the evidence presented to the Commission, but it appears from the opinion that the evidence as to the worth of the engine ton mile unit, and its effect in measuring the use made of the tracks and facilities of the railroad in actual service, and under varying operating conditions and the use and value of engine ratings as the measure of the service to be performed by them, was not developed in the evidence in the hearing before the Commission as fully as it has been in this case.

The opinion calls attention to the fact that a large proportion of the expenses incident to the maintenance of way and structures is not influenced by the weight and speed of the trains that pass over the track, but is the effect of natural causes. If the expense of maintenance is to be divided with reference to the causes that produce the damage and charged to the service in which the injury occurred, that fact is material; but if it is to be apportioned with reference to the *use* made of the track, we are unable to see how it can have any material bearing. As we understand the proposition, it is plain and simple. Here is a track that has to be used by engines and cars. Its upkeep involves a given amount of expenditure for maintenance made necessary from many different causes. This expense is to be apportioned between the different branches of service on the basis and in proportion to the *use* they made of the track, without regard to the causes out of which the expenditures grew. It is not material, therefore, in this case, whether the cost of upkeep is the result of traffic wear and tear or natural causes, the expense has to be incurred, and is to be apportioned between the freight and passenger services on the basis of the *use* made of the track in each branch of service.

It is stated at page 86 of the brief that the statistics in the Western Passenger Fares Case would indicate that the relation of maintenance of way expenses, passenger and freight, should be about 30 and 70 per cent, "and the working up of the data called for by the Commission would probably bring about such a percentage; that data is not before you; it is not in this record, and nothing but conjecture is left as to the extent of this error." We have read the opinion of the Commission

with care, and feel warranted in saying that it contains no statistics that support the statement made by counsel, and, in fact, the learned counsel say as much in the language quoted from their brief. The percentages quoted by counsel are a composite result of applying the basis, referred to, to a group of twenty railroads, extending all over the Western half of the United States, and this is the percentage which counsel compares with the engine ton mile percentage developed locally on the St. Louis & San Francisco Railroad within the boundaries of the State of Arkansas.

## DIVISION OF YARD AND STATION EXPENSES BETWEEN LINE AND TERMINAL.

The witness Mayer also criticized the method prescribed in the formula in this case for the division of yard and station expenses between line and terminal services. We call attention to his testimony at pages 571-574, of the record, in which he asserts that there should be no difference in the treatment of a shipment originating on a branch line, in passing through a division point, and one originating on a foreign line and delivered to the St. Louis & San Francisco Railroad at a division point. He assumes that the handling is the same and it should be treated as terminal service in both instances, losing sight of the principle upon which the formula is based, requiring this division to be made with reference to the character of the service rather than to the accident of similarity of service. This has all been explained in the exhibits and testimony heretofore referred to, and we will not take up any further time with it other than to call attention to the testimony of Mr. Hamilton at pages 859-861 of the record. It will

perhaps be better to quote this testimony than to attempt to state its effect. It is as follows:

"Q. Mr. Mayer, in his evidence, criticized your plan for dividing expenses on station and yards, stating that your method had overburdened the intrastate because you had applied the state-wide ton units to the terminal proportion of station and yard expenses; and the state-wide line units, that is the ton miles, to the line proportion of station and yard expenses, in dividing between intrastate and interstate.

Mr. Mayer, as I recall it, stated that you should have made this division on the basis of business received and forwarded from each individual station. He further stated you should not have treated the expense of handling at station traffic interchanged between main line and branch lines as a line expense which you subsequently divided on the state-wide line units; that this traffic should have been treated as terminal at junction stations, each junction station being treated separately.

Have you made any investigation as to what the effect upon your results would have been had you followed Mr. Mayer's plan?

A. Yes, sir. I have taken Fayetteville station on our central division as typical point. I think it is a first-class illustration. Main line local trains and through trains run through there, the locals having their terminus at Fort Smith to the south and at Rogers to the north, the through trains running through Fayetteville from Fort Smith to Monett, in most instances.

Out of Fayetteville there are two branches leaving the main line, one the Ozark & Cherokee Central running across through Muskogee and out to Okmulgee on the Red River Division in Oklahoma; the other the St. Paul Branch which now runs out to Pettigrew. I thought that was just as typical an illustration of the situation Mr. Mayer discussed as I could find, and Fayetteville is a good sized healthy station.

There was just the condition there in actual operation that Mr. Mayer used for his illustration.

I have lifted the Fayetteville expenses and operating performance bodily out of our two months' figures.

I reconstructed a divisioin of expenses at Fayetteville on Mr. Mayer's plan, for the test period of November and December, 1913, following his suggestions literally. I have segregated first from the state-wide pool the station and yard expense actually incurred at Fayetteville during the test period. I have divided the Fayetteville station expenses between line and terminal, freight and passenger, on the basis of the agent's time-study made by the agent at that station, and which was included in our November and December, 1913, test.

I have made a subdivision of the freight expenses as between clerical or office, freight house and yard, and by 'yard' there I mean the yard proportion of the station expenses, office and yard clerk, chargeable to freight services, and have made this apportionment on the time study basis.

Right at that point the passenger proposition goes out of the problem of making the freight study that Mr. Mayer suggested. I have added the time study proportion of the yard expenses properly chargeable to freight terminal, to the yard proportion of station expenses chargeable to freight terminal.

I then set up the terminal freight expenses divided between clerical, freight house and yard at Fayetteville, alone, taken out of the state-wide pool. The clerical freight terminal expense I divided between state and interstate on the basis of the number of consignments handled at Fayetteville station alone. That is what Mr.Mayer said he would have done. The freight house expense chargeable to terminal freight at Fayetteville I divided on the basis of the number of tons of less-than-carload freight received at and forwarded from Fayetteville station proper.

The yard freight terminal expense I divided between state and interstate on the basis of the number of loaded cars received and forwarded from Fayetteville station.

All these units were state-wide units in the pool that Mr. Mayer complained of. Now I have localized them.

The freight line proportion of the yard expense at Fayetteville determined upon the time study in that local yard, I divided between state and interstate on the basis of the gross tons of loaded cars picked up or set out at Fayetteville by

main line trains passing through, or brought in or taken out by branch line trains. That is exactly what Mr. Mayer said he would have done, localizing the whole proposition and making the division or application of our units in that way.

You see, we have virtually resolved, or actually resolved, that branch line interchange into the terminal proposition in dividing its line expense burden as he said he would have done.

To contrast the result of this method proposed by Mr. Mayer, and which we have followed literally as we understood him, I extracted from the figures which have gone into the company's exhibits the detail of the Fayetteville expenses set up on the basis of the formula, and prorated on state-wide line units. That is, I just took out the Fayetteville expense and set it up by itself, and applied to it the same state-wide units as had been applied to it when it was in the pool. Contrasting the results of following Mr. Mayer's suggested method, with the results obtained under the method reflected in our exhibits, I find that of the total station and yard expenses at Fayetteville there was charged in our exhibits $592.66 to intrastate freight and $2,205 to interstate freight; whereas, following Mr. Mayer's suggested method I got a charge to intrastate freight of $1,058.51 and to interstate freight of $1,739.35. So that Mr. Mayer's suggested method, had we employed it in compiling our exhibits, would have charged to the intrastate freight at Fayetteville—certainly a representative statement of the condition he discussed—almost 100 per cent more than we really charged to that intrastate freight.

I don't think Mr. Mayer's method is right. I think that the business of the state, intrastate and interstate, separately, must stand or fall alone. We are running that whole railroad in the State, we are not just running Fayetteville or Winslow, or Fort Smith station, and it is all part of the game.

There is the reciprocal service one place and the other—I can not think of any other illustration than the one Mr. Mayer himself made of Fort Smith and the Harvard yards. They are all necessary to the conduct of the company's business in the State. We are not running stations, we are running a railroad." (R. 859, 860, 861.)

It will thus be seen that taking a typical station in which the operating conditions discussed by Mr. Mayer actually ob-

tained and applying his suggested method in detail would have resulted in charging the intrastate freight traffic double the amount which was actually charged under the formula contained in Exhibit No. 1. The division made in that formula is the logical and correct method of making the division with reference to the relation of the service to the traffic. It is clearly a line expense and it would be improper to treat it otherwise, and this is but another illustration of the little value of conjectural statements made by witnesses when brought in touch with, and tested by, an analysis of the actual facts, where the matter in controversy can be demonstrated.

The finding of the court below, set out in the opinion at page 920 of the record, that "the formula of the company is correct, that it is a haulage, and not a terminal charge; that the error of Mr. Mayer is that he confounds the yard and station expenses with the terminal. In the one instance it is a part of the haul, while the latter is that of receiving, storing and delivering," is sustained by the evidence.

## APPORTIONMENT OF CAR REPAIRS BETWEEN "LINE" AND "TERMINAL" SERVICE.

The formula in Exhibit No. 1, at pages 13 and 14, accounts 31 and 34, under the head of "Maintenance of Equipment," contains a statement that the amount of repairs attributable to "line" or "terminal" service (except accident repairs) is wholly a matter of opinion which must be determined by experts who, because of their experience, are properly qualified to make such estimates. It, therefore, was submitted by letter ballot by the chairman of the General Managers Association to its members as to the proportions properly chargeable to

"line" and to "terminal," and the average of such expressed opinions has been used in the assignment under these two classes. The submission of the question was accompanied by a full explanation of exactly what, under this formula, constitutes "line" and "terminal" services, respectively. The proportions thus arrived at were 64.94 per cent "line" and 35.06 "terminal" in the division of passenger train car repairs, and 36.03 "line" and 63.97 "terminal" in the division of freight train car repairs. The exhibits of the appellees were based on the divisions prescribed in the quotation from the formula. A question having been raised in regard to the correctness of the formula, on the view that it was not consistent with the formula recommended in "The Economic Theory of Railroad Location," a book written by A. M. Wellington in 1877, the appellees engaged Mr. W. E. Symons to make investigations and report on the subject.

Mr. Symons was well qualified to speak on this matter. He is a mechanical engineer of national reputation; has had large experience in designing and constructing engines and cars. His skill and judgment in such matters is sought by railroad owners and officials throughout the entire country. A short statement of his experience in this particular line of work made by him at request of counsel appears at pages 465-468 of the record. He has no regular railroad connection, but maintains an office in Chicago as a consulting engineer, and is employed as an expert by railroads all over the country, in connection with designing, construction and operation of locomotives and cars. He made an independent investigation of the matters involved here and his views on the subject are stated in the following extract from his testimony:

"I was called upon a short time ago to make an investigation and reach a conclusion with respect to the contributing causes making necessary repairs to railway equip-

ment, including locomotives, passenger and freight cars. I proceeded upon that work and have covered it pretty thoroughly.

My study embraced primarily securing information from the railways interested with respect to the actual expense of repairing a certain number of freight and passenger cars. I took those items of expense of repairing individual cars and subdivided or allocated them, assigning a portion to line and to terminal, having previously subdivided the car or engine into eight items with the locomotive and twelve or thirteen items with the car, which items correspond to the essential parts or elements representing the physical anatomy of the unit in question.

The expense of repairing each of these items was then subdivided or allocated as between line or terminal on a percentage basis, in the cars using the actual cost of repairs, as shown by the owning companies; with the locomotives, however the actual cost of repairs not being available, I took the average cost of all locomotives in the United States for the year, as shown by the reports, subdivided the expenses between line and terminal in the same manner as the cars; and then, as a test of the accuracy of the subdivision, I had the benefit of and used a series of time studies which had been made by the line at interest, showing the actual time locomotives are in service, hauling trains, the actual time at stations doing work, and time waiting for trains and for other delays.

A check or comparison of the conclusions reached was practically the same, so that the use of the time studies in connection with my subdivisions confirmed the percentages I had arrived at as being correct.

I have been strongly of the opinion for many years that about eighty per cent of the expense of repairing freight cars was due to rough treatment and about twenty per cent due to the use of the car under normal conditions of train movement.

In taking up this study I secured from the lines at interest statements showing the actual cost of repairs to a number of freight cars. I then took from those representative cars which, in my opinion, would about represent the present complexion of the equipment, having regard to material used in their construction, which includes wooden frame box cars, steel underframe box cars, wooden underframe coal cars,

steel underframe coal cars and wooden flat cars. So that the figures used would be fairly representative of the equipment now in use and that has been used for some years.

I then subdivided the expense items under twelve headings, which represent, in a general way, the physical anatomy of a freight car—the twelfth, however, being miscellaneous.

I then allocated or subdivided each expense item as between line and terminal, basing this division on my judgment as the result of practical experience of some twenty odd years, in the designing construction, puchase and maintainance of equipment, and with particular reference to my more recent studies while working in the capacity of a neutral expert, in all of which cases I have been entirely free to ascertain and cast up the facts as found, not being influenced in any manner by the policy of any of the companies at interest.

In taking these cars, I took a total of twenty-eight, using that number, and I secured as a result of this allocation between line and terminal an average of 75.7 per cent to terminal and 24.3 per cent to line; having in mind, however, that certain damage is done to cars in line work, which I have estimated to be about 10 per cent of the cost of repairing cars —that is, about 10 per cent of the cost of repairs is the result of rough treatment in line work, which consists of making up and breaking up trains; so it was proper to deduct that amount from the 75.7 per cent, which I did, adding it to the line expense, giving me a final figure of 35 per cent line and 65 per cent terminal."

"I think it would be proper for me to state that this division of 24.3 per cent and 75.7 per cent is the result of my analysis of these cars, showing the percentage of expense due to ordinary use and that chargeable to rough handling or abuse. But having in mind, as previously stated, that some of the rough handling or abuse of cars was occasioned under line treatment, such as the making up and breaking up of trains, it is proper to remove that portion of it and charge it to the line. As I knew of no way to separate that prior to the analysis, I made my analysis complete and then deducted what in my judgment was a fair and reasonable amount, *i. e.* 10 per cent.

"Now, answering your question direct, as to the rough treatment or abuse as distinguished from ordinary normal

use: It consists principally of rough switching of cars, 'cutting' them off, as it is termed in station work, at a considerable rate of speed so they are thrown down against other standing cars, causing each time an impact or concussion similar to that of a collision, only on a somewhat smaller scale. Frequently the draft gear and other essential parts of the car are damaged more in one operation of this kind than the car would suffer if hauled in ordinary train service for months or for perhaps years. These operations are repeated so often and frequently that the combination of them results in the destruction of many of the most essential parts of the car and those most expensive to repair.

"This rough treatment, almost all of it, is in what we call terminal work. Some of it is on hump yards; a great deal of it is where we have individual switch engines doing field work, where the cars are 'kicked' in, as the switchmen term it, at high rates of speed, and not ridden down by brakemen to prevent them striking; and, as a result of their coming together, the car is damaged, not only the body of the car but the truck.

"Q. Is damage more apt to occur at terminal points than on the line?

"A. The work at terminals, in yards, is more destructive to cars than the line work, for the reason that switch engines doing yard work do not use the air brakes to decelerate the speed of cars. They are pulled out over what is called a lead, and then cut off on return in such numbers as may be desired to make the proper classification and thrown into various tracks. And very seldom are they ridden down by the field men.

"While in line work, particularly in trains, most of the switching is done with the air coupled up, because it is done with a completed unit or train going over the road, and by using the air in switching there is less destruction of cars. * * *."

"In making an analysis of the contributing causes necessitating repairs to the passenger equipment I followed the same general plan, or fundamental principles, as in the freight cars, securing from the roads in interest copies showing the itemized expenses involved in repairing various kinds of their cars which would fairly represent their equipment.

"I then subdivided, or divided, the essential elements or parts of the cars under thirteen headings, twelve of which represent the physical anatomy of passenger equipment.

"I then took the amounts expended on each item or part and subdivided that between line and terminal as, in my judgment, fairly represented the uses of the property or the contributing causes making necessary the repairs in question.

"I used a total of twenty cars, which I considered representative of a typical passenger train, with the mail and express cars eliminated, for the reason that it is taken care of on the car foot mile basis; and the Pullman car, for the reason that the railway company does not repair it. That leaves the units to be dealt with which came within the scope of my investigation.

"I attached to my summary a sample sheet showing the individual distribution of one car, which is the same as was used with all the others. My divisions were as follows: * * *."

"Q. What proportion of the cost of passenger car repairs do you charge to line and what proportion to terminal? I do not think that has been stated.

"A. 82½ per cent to line and 17½ per cent to terminal. That is based on the belief that passenger cars are more evenly worn out than any other equipment, and that about 82½ per cent is chargeable to train running or line service, and about 17½ per cent of it to terminal. * * *."

"Q. Will you take up next the expense of locomotive repairs, taking up first the freight and then the passenger, and state in what proportion that expense would be chargeable divided between line service and terminal service.

"A. In making an analysis of locomotive repairs the same fundamental principles were followed that were used in the case of the cars. The companies, however, do not all have ready for access or use the cost of repairing individual locomotives. I, therefore, took the average cost of repairing locomotives in the United States for the fiscal year of 1913, as shown by the government records. I then assigned a proportion of that cost to locomotives on a percentage basis, this division being under eight items representing the physical an-

atomy of a locomotive—that is, it covers the principal parts. The amounts then were assigned to terminal and line service on a percentage basis, corresponding to what in my judgment represented the contributing causes making necessary the repairs in question. * * *."

"Assuming that there are four or more engines performing what is termed through freight service, in comparison to one that does local or terminal work, the average would be 66.72 per cent line and 33.28 per cent terminal, this being so close to 66 per cent and 34 per cent that the figure was placed at 66 per cent line and 34 per cent terminal. * * *."

"I used the time studies (made by the railroad in the test) and worked them out on a percentage basis, and, applying them to the locomotive I got practically the same results, 66 per cent and 34 per cent. It checked so evenly that it fully confirmed my conclusion reached through the separation of the various physical parts of the locomotive. * * *."

"A. In making an analysis of passenger locomotives the same method was employed as just described with respect to freight locomotives, the average cost of repairs to all locomotives in the United States being taken as a basis on which to distribute these expenses as shown on the statement of distribution of repairs to engines.

"The difference in the amount assigned to the various items, that is, the eight items, as between local and through passenger trains checks very closely with the differences observed with the freight engines, and for the same reason, namely, that the local passenger engine stops more frequently, if not much more frequently, in proportion to the mileage made than the local freight engine, and while it does not do any switching except in rare cases, yet the close proximity of stations on many lines results in the local passenger engine performing what might be called a stopping and starting service over the entire district, the stations on some roads being on an average of only four miles apart and in some cases a little less, so that I find the contributing causes making necessary repairs to a local passenger engine to be 36 per cent terminal and only 64 per cent line, while with the through passenger engine I find the terminal expense to be about 29 per cent terminal and 71 per cent line, and, as there is a preponderance of line engines, or engines in through train ser-

vice, as compared with those in local service, I find that by averaging these on pretty much the same basis as used with reference to the freight engines, it gave me an average of 70 per cent line and 30 per cent terminal." (R. 466-484.)

Mr. Symons filed summaries of his division of freight car repairs as exhibits 43 and 44 and of passenger cars as exhibits 46 and 47, of engines in freight service 48 and of engines in passenger service 49. The difference between the proportions of this class of expense assigned to "line" and "terminal" services, respectively, in the summaries prepared by Mr. Symons and the divisions contained in the formula at pages 13 and 14 is set out on the first sheet of Exhibit No. 51. The effect of applying Mr. Symons' percentages to the locomotive and car repair expenses of the railroad in Arkansas, in each of the periods covered by the exhibits in this case, is set out on sheet 2 of Exhibit 51, from which it appears that the net increase or decrease in intrastate expenses is not in any of the periods of sufficient importance to make a perceptible change in the figures shown in Exhibits 22, 24, 25, 26 and 27-A.

This is perhaps the only question in this case that depends upon expert opinion. No one can know, except as he may determine from his judgment based upon experience, how these particular divisions should be made. The only evidence introduced in opposition to the formula, or the summaries prepared by Mr. Symons, was based on the Wellington formula referred to a while ago. Mr. Symons knew Mr. Wellington, and testified that he was an able engineer and his book was considered an authority in its day, but that the conditions in railroad operation, and changes in equipment, were so great

that many of the views expressed in his book, and particularly his formula, for assigning repairs of this character could not be applied at this time.

This formula was not introduced in the record, but the methods of division contained in it are set out in the table, which appears on the first sheet of Exhibit F filed by Mr. Simson on behalf of the appellants.

Exhibit F is an attempt on the part of Mr. Simson to translate certain tables set out in a paper read by Mr. J. B. Berry, a civil engineer, and at the time chief engineer of the Union Pacific Railway, at a meeting of civil engineers held in 1904. The paper was a discussion of the expense of relocating parts of the line of the Union Pacific Railway in 1904. Mr. Berry was attempting, in the paper referred to, to estimate the saving in the cost of equipment repairs that would result from the relocation of the tracks of the Union Pacific Railway. It was necessary for him to consider the effect upon this cost of the physical characteristics of the railroad, such as curvatures, grades, etc. Not being a mechanical engineer himself, he used the tables prepared by Mr. Wellington, and also tables prepared by a gentleman by the name of Webb. He was not discussing, or concerned in the subject involved in Mr. Wellington's formula, further than the application of the tables prepared by Wellington might aid him in determining the effect the change of certain grades and curvatures would have upon the cost of equipment maintenance. Having no knowledge on the subject as a mechanical engineer he simply took up the formulae of Wellington and Webb and used them, not for the purpose of indorsing them, on any investigation made

by him, because Mr. Berry would not have felt capable of passing on that question, but as a man would use any treatise prepared by another on a subject upon which he himself had no expert knowledge. By using these tables counsel very adroitly attempted to make Mr. Berry a witness in this case, without taking his testimony, and by having Mr. Simson, a man who confessedly had no knowledge whatever upon the subject, to interpret the tables prepared by him, to make him a witness in regard to highly scientific mechanical question upon which Mr. Berry, if called, would have declined to testify, on the ground that he was not possessed of sufficient knowledge or experience.

This was the object in preparing and introducing Exhibit F. The first sheet contains the Wellington tables. The following sheets are an attempt on the part of Mr. Simson to convert various tables based on the use of Wellington's formula into a division of cost of equipment repair between "line" and "terminal" services. Mr. Berry, no more than Mr. Wellington, had any knowledge or thought of such a division, and Mr. Simson had no qualification to interpret and apply the tables prepared by those gentlemen, as he attempted to do in this exhibit. He thus describes his effort in his examination in chief:

"I had some curiosity to know how a distribution of maintenance of equipment repair items for locomotives, passenger cars, and freight and work equipment, compared with the Berry tables as shown in the proceedings of the Fifth Annual Convention of the American Railway Engineering and Maintenance of Way Association, held in Chicago March 15 to 17, 1914.

"I do not pretend to sustain the tables from any technical knowledge of engineering matters.

"I have taken those tables, and, as near as the information there given would permit—and I think it is fairly close—have assigned to line and terminal the percentages of the maintenance, following the definition of line and terminal as given in the formula, Exhibit No. 1.

"I have in this exhibit quoted the full tables as shown in Mr. Berry's table. On page 2 of Exhibit F, I have shown the assignment of these percentages, which represent distribution of contributing causes, to line and terminal according to the best definition I could make of the terms employed.

"Time and exposure, being applicable to both line and terminal, has been apportioned between the two upon the basis of the percentages previously assigned; in other words, an overhead method, if you please." (R. 606, 607.)

Extracts from Mr. Berry's paper were read to him on cross-examination, in which it was stated that estimates were made in the various locations of the changes in the line of railroad, and statements prepared, establishing comparisons of the physical characteristics and the estimated annual saving in the operation of the proposed lines as compared with the existing lines, and its effect in reducing operating expenses; and the statement by Mr. Berry in his paper that these comparative estimates were made in accordance with the method given by Mr. A. M. Wellington, using his classification of expenses and percentages showing the effect of changes in gradients, distances, etc., which were applied to the estimated cost of operation on the Union Pacific for a period of years, and containing this further statement:

"In order to obtain the value of the details of location for the use of engineers in the Western States, the general methods of both Mr. Wellington and Professor Webb are applied in this paper to the operating expenses of the Union Pacific Railroad." (R. 755.)

These matters were brought to Mr. Simson's attention and he was asked if he did not understand that Mr. Berry, being a civil engineer and not a mechanical engineer, used these formulae simply for the purpose of developing the idea he had in mind as any one would use an authority at hand, and he answered:

"I have no idea of the process Mr. Berry followed in producing his figures. Mr. Berry was an engineer of some reputation, but how he got his figures I do not know." (R. 755.)

Mr. Nay, who knew Mr. Berry very well, having been associated with him during the time the latter was chief engineer of the Chicago, Rock Island & Pacific Railway, was questioned in regard to his qualifications with reference to mechanical engineering, and stated:

"Mr. Berry has not had much experience in the maintenance of equipment. I know Mr. Berry personally very well, and I know that I am not saying anything about which he would not agree with me when I say that his life has been spent as a civil engineer * * *.

"He is a high-toned, straightforward gentleman, and I like him, but with all that, I don't believe that his experience in maintenance of equipment has been anything like his experience in construction work and in the maintenance of way and structures." (R. 361.)

Mr. Symons was questioned in regard to the Wellington formula and testified that he knew Mr. Wellington; that he was an able civil engineer and railroad man, and that his book was respected as an authority in its day. He then made the following statements:

"Much of the data on which Mr. Wellington predicated his formula was secured from the Atlantic & Great Western Railway, which was originally a broad gauge road running

from Salamanca, New York, to either Columbus, or Dayton, Ohio.

Notwithstanding the fact that the freight cars built at that time, and which he used in his formula, were broad gauge, they cost only about $500. They were of about 20 to 25 ton capacity.

Q. You speak of 'broad gauge;' you mean broader than the present standard gauge?

A. Yes; I think it was six feet, but I am not sure.

For years they had to use a hoist in handling the passenger equipment and lifting the car bodies off their trucks so they could run their sleeping cars and passenger cars through from New York, Buffalo to Cincinnati. Some of the old hoists are there yet; I have seen them, or evidences of them.

Wellington's formula made at that time, and using equipment of that type and capacity, and also considering the conditions in effect at that time, would have no application to present day conditions at all.

As an illustration, he assigns a certain percentage of contributing causes to making up and starting of trains. It was customary in early times for the engineer and fireman to get up in the morning and build a fire in their locomotive; while steam was raising they would get their breakfast; then they came back and switched out their trains, and after they had switched a long time then they took their train and proceeded over the road. There are no such conditions nowadays at all. There were very few yards in those days except the yard that was used for the train crew to use when they came in at the end of their run. Mr. Wellington's table was based upon conditions that have so completely changed, both with reference to the railway operation and with respect to the character of equipment and the manner of handling it, that it would not be applicable at all, although the fundamental principles are good and Mr. Wellington was one of the brightest and best railway men the country ever produced. His book has a foremost place in my library. I prize it highly. His tables on equipment, however, are completely out of date.

In 1907, I made an examination of a report upon the equipment and facilities for its maintenance of the Erie Railway. In making that examination it was necessary for me to personally inspect every car, or some of each series of cars owned, and among the cars still carried on the company's schedule of equipment were some of these old twenty and twenty-five ton wood box cars, originally the property of the Atlantic & Great Western; later becoming the property of the New York, Lake Erie & Western, when the Erie bought the Atlantic & Great Western, and still later being merged into the Erie system.

These cars were being used for boarding or camp cars—

Q. Were those the cars Wellington made his test on?

A. They were built at that time and in that period.

Q. The same class of cars?

A. Yes, the same class of cars, and I would be safe in saying, I think, that these were the cars because they were the only cars at that time that the Atlantic & Great Western owned that were still in existence.

I recommended that they scrap all of them and write them off of the books in order to preserve the integrity of the company's capital account, which they have since done except for a few that have been lifted off the trucks and have ceased to be cars, being now used for what is termed switch shanties and for boarding purposes.

They were a good car in their day, but there is no such equipment used now, and a distribution of contributing causes of repairs to equipment based upon cars or locomotives of that kind and upon conditions of that period is not a good rule to attempt to use now.

Another very important feature was that in that time all cars had what was called a link and pin coupler, making it necessary for the brakeman or conductor to go between the cars to where he made the coupling and they were handled very carefully compared to what they are now. Since the automatic coupler has come into use, and it is not necessary for the trainmen to go between the cars, the destructive effect of

switching has gone up enormously. It did not obtain in those days. If it had the cars would not have been alive for me to have seen them in 1907" (R. 485-486.)

Mr. Simson very frankly testified that he had no knowledge that would qualify him to deal with the matters embraced in Exhibit F. For instance, he testified at pages 606, 607: That Exhibit F is based on the Berry tables shown in the proceedings of a convention of the American Railway Engineering and Maintenance of Way Association, March, 1904. That he did not pretend to sustain the tables from any technical engineering knowledge. He had taken the tables and made a line and terminal designment of the percentages shown therein.

In Exhibit F he had shown his assignment to line and terminal of these contributing cause percentages which appear in the Berry tables. Had done this according to the best definition he could make of the terms employed in the Berry tables.

Had apportioned Mr. Berry's time and exposure percentages as an overhead item. Considered this to be practically the same as depreciation. Had classified Berry's "stopping and starting" as "terminal." This is not entirely accurate. Part of it should have been assigned to 'line,' but I could not divide it.

Assigned "getting up steam and terminal work" all to terminal. I assigned "average curvature" all to 'line;' I don't think this is entirely accurate. There is some curvature in terminals. I had no way of dividing it.

He further testified that he did not know that the Wellington formula was dealt with only by mechanical engineers;

that he did not know Mr. Berry's purpose in using the Wellington and Webb tables; that he did not know what Berry's "stopping and starting" consisted of. A reading of his testimony on cross-examination beginning at page 757 of the Record will disclose that he had no knowledge whatever on the subject with regard to which he was testifying—a subject of a highly complicated and technical character that only persons of a high degree of training and knowledge are capable of dealing with. In this connection, and in conclusion upon this point, we call the attention of the court to the findings and summing up of the evidence of these two witnesses contained in the opinion of the court below at page 920 of the Record.

## THE EVIDENCE OF MR. F. NAY.

Counsel attempts to compare the testimony of Mr. Nay, in this case with his testimony in a former case of the St. Louis, Iron Mountain & Southern Railway Company, and severely and very unfairly criticise him in that connection. The case referred to arose several years ago. An imperfect test made during the month of October, 1908, on another railroad was introduced in evidence by the Railroad Company, by which the test had been made. While Mr. Nay was on the stand in that case, he was questioned in regard to the value of the test, and testified that he did not believe that the month of October, or any one month, should be taken as representative of any six or twelve months, where you wish to obtain accurate results. That October was not a normal average month because the business in that month was the heaviest in the year. When asked, in effect, if the testimony he then gave was con-

sistent with his testimony with regard to the test period in this case, he pointed out the difference, that in this case a period of two continuous average months was taken; that two consecutive months afford a better test than one month, and that his judgment, at this time, was also influenced to an extent by the similarity of the results shown by the two months and the four months tests made under his direction on the Chicago, Rock Island & Pacific Railway. (R. 328, 329, 330, 371, 372.)

Attention was called to a statement made by Mr. Nay in the case referred to, that he thought it would be remarkable if the character of state and interstate tonnage, and all the conditions surrounding it, were the same. He explained that in making the statement he had in mind the difference in the proportions of carload and less than carload, intrastate and interstate freight, and that the question of delays in transit growing out of congestion, which had occurred on the line of the railroad in that case, the resulting lap-overs, and the relative effect thereof on intrastate and interstate freight, was involved. His statement in regard to this was as follows:

"I am not positive now, because, in order for these percentages to be of value, supposing their condition had been met outside of the lap-overs, and they are correct in every other respect except the lap-overs; in order for them to be of value, considering the lap-overs, it would be necessary not only for the state and interstate to move coincidently, or be delayed coincidently, if there was a congestion, but it would be necessary for them to move coincidently on local and through trains. If traffic that moves on through trains is delayed, it must be delayed in the same proportion as traffic which moves on local trains, etc." (R. 375.)

This reference will give the court an idea of the difference in the conditions that existed in the two cases in which his tes-

timony was taken. He was further asked if he did not state in the former case that it would not be fair to take the last six months of a year to be representative of the whole twelve months, and showed that he was then testifying in regard to the net earnings, that he had so testified and still had the same view, and then pointed out the distinction between using one period for the purpose of determining the gross and net earnings, and the relations thereof, during another period, and of determining the relation between the different classes of traffic by ascertaining operating results in the handling and moving of traffic, and said, while it would be foolish to assume that the earnings of any previous twelve months would be six times what they were in a shorter period, it may be assumed that the relation between the expenses of different classes of traffic would remain substantially the same where the conditions are similar, pointing out very clearly the distinction which counsel seems to have overlooked between the two propositions. His attention was next called to a statement made before the Interstate Commerce Commission, that he thought the net operating revenue for a given month was an index of the entire year. The connection in which the statement was made is shown and explained by Mr. Nay at pages 378-9 of the record. It is not necessary to go into it now further than to state that the matter arose in an application for increased interstate rates before the Interstate Commerce Commission, and Mr. Nay, having furnished the Commission with the earnings of his road for some ten years, was putting into the record some additional compilations, including seven weeks additional, and the question was asked, and the statement made with reference to the effect of the figures contained in his earn-

ings sheets as an index to whether good times were coming, which was a material question, it having been asserted that business was improving, and that the railroads did not need the increase in rates they were asking for because "times were improving," and Mr. Nay's statement was made from that point of view, and no other.

It is not worth while to pursue the matter further. The court will find, upon reading the evidence referred to, that the statements in Mr. Nay's former testimony were made with reference to particular conditions that did not exist and were not involved in this case, and which do not appear upon the partial extracts from his evidence, or else, that it related to matters in regard to which he had upon further investigation modified his former opinions. At the time the evidence in the former case was taken, he, in common with many railroad men, believed the gross revenue was the best general factor for dividing the common expenses, but when that basis was eliminated by the ruling of the court in the Minnesota and other cases, and it was announced that a use unit must be used, a new line of investigation was adopted by those charged with the duty of investigation, including Mr. Nay. It is manifest that he gave very careful and detailed attention to it and caused the series of tests, about which he testified, to be made, and it is not surprising, or to his discredit as a witness, that he should, and did in the course of the investigation, have occasion to modify his views in regard to some of the question involved. The whole matter is very well set out in the suggestions of the court, in whose presence the evidence was taken, at page 399 of the record, on objection to the relevancy

of the testimony. The extracts used by counsel in questioning Mr. Nay in this connection show how misleading, and calculated to cause misunderstanding and erroneous impressions, is the practice of producing partial extracts from former evidence of a witness in a case of this character.

## APPELLANTS' EXHIBITS A, B, C, D AND E.

Exhibits A, B, C, D and E, filed by the appellants, were prepared for the purpose of showing that in the exhibits filed by the appellees an excessive cost per ton per terminal on freight, and per passenger per terminal on passenger, traffic, had been charged in the State of Arkansas. The manner in which the appellants attempt to do this is to ascertain the cost per ton per terminal and per passenger per terminal in Arkansas, and apply the cost so developed to the tons and passengers handled upon the entire system, assuming that the cost per ton per terminal on freight and per passenger per terminal on passenger traffic was the same in the State that it was throughout the system.

These five exhibits constitute a series for the purpose of establishing that proposition, and are therefore properly treated together.

By the application of the Arkansas terminal unit costs per ton and per passenger to the tons and passengers of the entire system, and the Arkansas costs for line service per ton mile and per passenger mile to the ton miles and passenger miles of the entire system, the appellants, in Exhibits B, C, D and E, built up a constructive total operating expense for the entire system which was considerably in excess of the actual

operating expense incurred by the railroad on its entire mileage, the conclusions drawn from the results obtained being that because the application of Arkansas costs per unit of traffic to the traffic units of the entire railroad produced more than the total actual operating expenses, therefore the Arkansas operating expenses, as apportioned between line and terminal service, in the appellee's exhibits were in error and excessive.

In Exhibit 4 filed by the appellees there is described in detail a method, the principles of which are outlined in Exhibit 1, for the assignment of interstate freight and passenger revenues to the State of Arkansas as distinguished from the remainder of the railroad. This plan, in brief, provided that in making a mileage pro rate between the States, of interstate freight and passenger revenues, an allowance in the shape of constructive mileage should be made to the States in which interstate traffic had its origin, or destination, on the rails of the St. Louis & San Francisco Railroad. The theory of this allowance, as is explained in the exhibits referred to, was to compensate for the cost of terminal service in originating or terminating the handling of this interstate traffic. No such allowance was necessary in connection with the Arkansas intrastate traffic, all of the terminal expense incurred in connection therewith being automatically localized to the State of Arkansas.

In making the constructive mileage allowance to compensate for terminal costs, such allowance was determined in terms of mileage based upon the relationship of the cost in Arkansas of handling one ton in a terminal or one passenger

in a terminal to the cost of hauling one ton one mile or one passenger one mile over the railroad in Arkansas in "line" service.

The sole purpose of determining the cost per ton or passenger for terminal service, and per ton mile or per passenger mile for "line" service, separately, in Arkansas, was to arrive at a basis for this constructive mileage equivalent compensation for terminal costs on interstate business; and the total terminal costs and total line costs in Arkansas were determined, not upon the number of tons or passengers handled at terminals or hauled one mile over the railroad, but upon actual time, and other related use bases, in accordance with the facts on each train in each yard and at each station. The costs within the State of Arkansas so actually determined in the manner and under the forms described in the appellees' exhibits were subsequently, as is explained in those exhibits, apportioned to the intrastate and interstate traffic within the State, without alteration, increase or diminution. In appellants' Exhibit A the total terminal costs, freight and passenger separately, and the total line costs, freight and passenger separately, set forth in the appellees' exhibits, as appertaining to all of the traffic in the State of Arkansas, are accepted and used by the appellants.

In dividing these terminal costs and line costs, freight and passenger separately, to get a cost per ton and per passenger per terminal, and per ton mile and per passenger mile for line expense, the appellees counted the intrastate tons and passengers in Arkansas as having two terminal handlings and the interstate tons and passengers as having but one ter-

minal handling within that State, such count of tons and passengers, as previously stated, being made simply for the purpose of getting a terminal equivalent cost to pro rate interstate revenue. The basis of counting tons and passengers by the appellees for the purpose indicated, was slightly in error. In the data submitted in the appellees' exhibits was shown the actual number of uses of terminals made by interstate and intrastate, tons and passengers in Arkansas, some interstate tons and passengers actually receiving more than one handling in the State, and some intrastate tons and passengers actually receiving more than two terminal handlings in the State, while some interstate tons and passengers received no terminal handling in the State.

The appellants, in Exhibit A, revised the number of ton and passenger handlings from one handling per interstate unit and two per intrastate unit to the actual terminal handlings shown in the appellees' data, and used this revised number of handlings in conjunction with the Arkansas total terminal and total line costs, determined by appellees, to produce a new average cost per ton and per passenger per terminal in Arkansas, without in any way changing the total terminal cost or total line cost assigned by the appellees to the freight and passenger business in the State of Arkansas, and subsequently divided by the appellees between the interstate and intrastate traffic.

The cost per ton and per pessenger per terminal so arrived at by the appellants in their Exhibit A is subsequently applied by them in the calculations set forth in their Exhibits B, C, D and E, which may be briefly explained as follows:

In these exhibits there has been applied by the appellants to the number of tons and passengers handled upon the entire St. Louis & San Francisco Railroad in seven States, covering a mileage of over 4,700 miles, the cost per ton and per passenger per terminal, and to the ton miles and passenger miles of the entire line, the cost per ton mile and per passenger mile for line service, of the railroad in Arkansas, as developed by the appellants in Exhibit A, based upon the appellees' showing of total line and terminal costs, respectively, within the State of Arkansas alone. The resultant figure set forth in Exhibits B, C, D, and E, the product of applying Arkansas terminal costs and line costs to the tons, passengers, ton miles and passenger miles, handled on the whole railroad, is a hypothetical cost or total operating expense upon the entire railroad, which, as these four exhibits show, is in excess of the actual operating expenses incurred by the entire railroad in the periods covered by the exhibits. The theory upon which the appellants made these calculations, and produced these hypothetical results, was that the cost per ton and per passenger and per ton mile and per passenger mile for terminal and line service, respectively, was no greater in Arkansas than upon the railroad as a whole.

We may say in passing, that for the purpose for which the terminal equivalent mileage allowance was used, that is, in determining the interstate revenues assignable to Arkansas, there was in fact no violence done to the interstate revenues assigned to Arkansas, as shown by the testimony of Mr. Hamilton and by the admissions of Mr. Simson, the witness who produced the appellants' exhibits now under consideration.

On page 596 and 597 of the printed record, Mr. Simson gave examples in specific terms of dollars and cents of the prorate of interstate freight revenue made by the railroad on the basis of the constructive mileage allowance to compensate for terminal costs. In most of the examples he cited, he dealt with large sums of money—total revenues to be prorated—giving the impression that there was some very large difference to be adjusted by reason of the change in the mileage allowance equivalent as per the appellants' Exhibit A.

On page 597, Mr. Simson admitted in answer to questions by counsel as follows:

Q. Do those examples you have given affect the intrastate earnings?

A. Not at all. Not the purely intrastate.

This foregoing question and answer referred to the freight figures. On page 598, referring to the passenger figures, the following question and answer by Mr. Simson appear in the record:

Q. All those you have referred to in passenger affect the interstate only?

A. Yes, sir.

Q. Do they affect the intrastate in Arkansas at all?

A. No, sir; it is all interstate.

He later admitted, upon cross examination, that the very large sums of money referred to in his illustrations on pages 597 and 598 in their effect even upon *interstate* revenue assigned to Arkansas made but a negligible difference. See

pages 722 and 723 of the printed record and, also, as an illustration, the amount of $669,000 referred to on page 597. When the prorate of this sum between Arkansas and several other States was corrected by Mr. Simson to the basis of his changed mileage equivalent allowance, he finds the difference is only one-tenth of one per cent, or the sum of $669. These calculations have relation only to the interstate revenues and this is again admitted by Mr. Simson on page 725, where he states that they have no effect whatever upon the intrastate revenue in Arkansas, and that "all of the revenue on intrastate shipments is assigned to Arkansas."

And again on page 776 where he states, "It would not affect the distribution of intrastate revenue to States," and upon page 777, where he states that it has relation solely to the prorate of interstate revenue between States.

APPELLANTS' CONTENTION THAT THE ASSIGNMENT OF TERMINAL EXPENSE UNDER THE FORMULA IS EXCESSIVE IS NOT SUSTAINED BY THE FACTS.

Mr. Simson testified that the figures developed in exhibits A, B, C, D and E indicate that the appellee's division of expenses between line and terminal is not correct, and that the formula is unsound; and, it is broadly asserted at page 60 in appellants' brief, that the formula is mathematically demonstrated by these exhibits to be wrong. This is their principal and most confident ground of attack upon the formula. The contention is not only untrue—it is contrary to, and inconsistent with, all the evidence as to the manner in which the terminal expense is first made up and subsequently divided among

the traffic units (intrastate and interstate passengers and tons), and the conditions of freight and passenger traffic in Arkansas as compared with the system, as to density and the length of haul.

Terminal expense embraces the cost of every character incurred in originating or terminating, receiving or delivering, traffic—freight or passenger—at the beginning and end of their haul or journey on the rails of a given carrier. It embraces, not only the proportion of wages of station, yard and train employees, properly chargeable to terminal service and the proper proportion of the cost of material and supplies and incidental expenses that go hand in hand with the activities of such employees, but also the maintenance of tracks, buildings, equipment and other facilities (or the proper proportion thereof) devoted thereto, as well as the related proportion of overhead, supervisory and general expenses. (Hamilton, Evidence, R. 865.)

The terminal expense was not determined on the basis of tons and passengers handled; that is to say, these traffic units were not in any way used as factors in the assignment of expenses to terminal service. On the contrary, the assignment of expenses to terminal service was based upon the time of employees devoted to that character of service, with the use of the facilities of every kind proportioned directly to the activities of such employees, as indicated by the employment of their time, regardless of the number of tons or passengers handled. Wherever the entire time of an employee, or the entire use of a facility was devoted to terminal service, all of such employee's time and all of the maintenance of such facility was

charged to terminal service. Wherever the time of an employee, or the use of a facility was devoted to both line and terminal service, a portion was assigned to terminal service which bore an exact relation to the time devoted to that service. It should be apparent to any one that, under the formula filed as Exhibit 1, and upon which the appellees' exhibit are entirely based, it would be impossible to assign any expenses as between line and terminal by using traffic units as factors for such division. This for the reason that line or haulage expense must necessarily be incurred in connection with the movement of traffic between terminals, which involves the element of distance, which element can only be expressed in the unit of *tons one mile or passengers one mile.* Tons and tons one mile can not be used as common factors to divide an expense incurred on account of the freight traffic, between terminal and line, nor the passengers and passengers one mile be used as a common factor to divide passenger expenses between terminal and line. It is entirely practicable, however, to determine the amount of time devoted by employees and the amount of time during which facilities are used, in handling freight in terminal service and passengers in terminal service, and freight in line service and passengers in line service, and it is upon this basis of the time use of the property that the terminal expenses in the appellees' exhibits were arrived at. (Bearing in mind, however, that each item of expense which was definitely and explicitly line or terminal, was directly assigned to these respective services in accordance with the facts, and that only the items of expense incurred jointly for line and terminal service were apportioned on the basis of time devoted to each.) This is explained and illustrated in Ex-

hibit No. 2, and the forms contained in Exhibits 2-A to 2-K. Upon these forms, station agents, foremen of switch crews, section foremen in charge of track maintenance, conductors, special clerks placed in yards and upon trains for the purpose of collecting and reporting information, made daily reports during the test period, showing how much time in all of these classes of service was devoted to terminal work and to what extent facilities were used in that service, such as tracks, buildings, equipment, etc. These reports covered also the terminal work done by road trains. These reports were collected and verified, and the total terminal expense on the railroad in the State of Arkansas was determined, by charging thereto the wages of employees and the cost of materials and supplies used by them, in proportion to the time devoted by the employees to terminal work or the use made of the facilities, buildings, etc., in that service. Now, when the terminal expense had been ascertained, in the manner described, for freight and passenger service separately, then the ton units and passenger units came into play and were used, when properly classified between intrastate and interstate, as factors to divide the freight terminal expense and the passenger terminal expense between intrastate and interstate freight and passenger traffic respectively.

The separate freight and passenger intrastate and interstate terminal costs, in Arkansas, appearing in the appellees' exhibits were ascertained in careful and minute detail in the manner herein described. The appellants do not question the accuracy with which these terminal costs were arrived at upon the bases described. They do, however, claim that the bases and methods used by the appellees in determining these ter-

minal costs were not proper ones. They do not attack them directly, but only by implication attempt to show that these bases are erroneous. This is the sole purpose of their Exhibits A, B, C, D and E, wherein they attempt to show that, because when the Arkansas terminal costs are applied to the tons and passengers handled upon the entire railroad in six other States in addition to Arkansas, and the Arkansas line costs determined by the appellees are similarly applied to the ton miles and passenger miles of the entire railroad, the constructive result produced is more than the total actual operating expenses of the entire railroad. The contention of the appellees is that their allocation of expenses to terminal service and line service in Arkansas has been made upon sound and proper bases and is correct, and that the underlying reason for the result produced in the appellants' Exhibits A, B, C, D and E is that Arkansas terminal costs and line costs per unit of traffic are higher than the average of such costs for the railroad as a whole, and that the reason for this is found in the lighter density of traffic per mile of road in Arkansas, and the shorter haul of traffic in that State as compared with the average for the entire railroad. Illustrations are given by Mr. Hamilton in his testimony as to the effect of lesser density and shorter hauls upon the unit cost of handling traffic. In many instances, the cost of maintaining and operating switch engines and maintaining terminal tracks and facilities and many other kind of expenses go on just the same, whether one or ten or fifty tons of freight, or one or ten or fifty passengers are handled. Take, as he says, a one-man station, where one man only is employed. The cost of his employment is the same whether he handles ten tons of freight or fifty tons, and re-

gardless of how the number of passengers handled at such station may vary from day to day. The total cost at a given station or in a given yard may or may not, and often does not, vary in anything like direct proportion to the number of traffic units. The volume of traffic handled at such a station or yard and the cost per unit of traffic depend very largely indeed upon the density of traffic, or the number of tons or number of passengers handled, among which the cost *actually incurred* is to be apportioned.

In this connection, there was offered in evidence, appellees' Exhibit No. 56, which was a statement of the cost per car handled in each of the yards on the entire railroad in the month of September, 1914. This statement, which is prepared by the railroad regularly each month in the conduct of its business, and was not prepared specially for this case, sets forth the actual cost of handling all cars in every yard upon the entire railroad. By dividing into such actual cost, the number of cars handled in each yard, there is ascertained the cost per car handled. In connection with this exhibit, we call attention to the following quotation from Mr. Hamilton's testimony (R. 886) in connection with the exhibit, and which illustrates the fallacy of the results obtained in appellants' Exhibits B, C, D and E.

"Exhibit 56 is our September, 1914, yard cost statement. It shows that on this entire railroad during that month, we handled 593,329 cars, at an average cost of 23.2 cents per car.

"In the yard at Fort Smith we handled 8,254 cars, at an average cost of 38.7 cents per car.

"Let Fort Smith typify Arkansas: That average cost at Fort Smith is ascertained by dividing into the actual money

spent at Fort Smith the number of cars handled in that yard. If you take that 38.7 cents and multiply the actual number of cars handled on the entire railroad by it, you find a constructive cost of $229,618, whereas, the actual cost as shown in this exhibit was $137,664. But that does not alter the fact that there was that actual cost incurred at Fort Smith. The parallel runs between that and our assignment of terminal cost in Arkansas. That cost was not built up on the number of cars handled at Fort Smith; it was built up on the number of switch engine hours that were worked there, as shown by the cost statement. That is what causes the expenses, not the number of cars we move. The cars were handled, it is true, as a result of working those switch engine hours, but to cut out 25 per cent, perhaps, of the number of cars handled might not have enabled you to reduce one single switch engine hour. That is your density of traffic proposition.

Now, let us take another illustration: It is Jonesboro, in Arkansas.

The cost per car at Jonesboro was 35.9 cents. If you apply that to the number of cars handled on the entire railroad you get a constructive cost of $213,005, as against an actual cost of $137,664.

The statement shows that in the month of September, 1914, at Jonesboro, we worked two crews, a day crew and a night crew. We paid those two crews for the services they performed. We had to keep them there to protect that yard, and we incurred an actual cost of $1,804. We handled 5,018 cars. Having to protect that yard with its light traffic density—let us assume the number of cars that came there for handling were diminished about one-half, or cut to 2,500—we could not take away one dollar of that actual expense in the Jonesboro yard, but the cost per car would have been twice as great. There is the Arkansas situation in our terminal cost versus the entire line.

The costs are not built up in the Jonesboro yard on the number of cars handled any more than our terminal costs in these exhibits are built up on the number of tons handled. The cost is incurred, true, as a result of the tonnage, and the cars in this instance, being handled, but it is not apportioned between line and terminal on the basis of the number of cars or tons. I can not make it any plainer."

For the year, 1913, the density of freight traffic for the entire railroad in seven States, was 639,906 tons one mile per mile of railroad; in the State of Arkansas, it was 545,957 tons one mile per mile of railroad, the Arkansas density being 20 per cent less than that of the entire railroad. In the same year, the number of passengers carried one mile per mile of road upon the entire railroad was 97,000, and in Arkansas, 75,000, the Arkansas passenger traffic density being about 30 per cent less than that of the entire railroad. The evidence shows that on some parts of the railroad, outside of the State of Arkansas, that freight traffic density runs from 2,000,000 to 3,000,000 tons one mile per mile of railroad per annum. The illustrations, made by Mr. Hamilton, show the effect of such a difference in traffic density upon the unit cost, terminal as well as line.

At pages 65 and 66 of appellants' brief, attention is called to the fact, in discussing their Exhibits A, B, C, D and E, that the traffic density, both freight and passenger in Arkansas, was less than that of the entire line, both in 1913 and 1907. An effort is there made to show that it would be proper to apply Arkansas unit costs to the traffic of the entire railroad and from the results obtained contend that the appellees' line and terminal unit costs in Arkansas were wrong, by quoting witness Simson's testimony to the effect that a difference of 20 or 30 per cent in the traffic density would have no appreciable effect upon the costs per unit of traffic. In this connection, counsel, at page 65 of appellants' brief, refers to Mr. Simson's statement that wherever the same number of trains are run, the cost of operation of the railroad would be practically the

same, regardless of the contents of the trains, in numbers of tons or passengers, and counsel seems to have drawn the erroneous conclusion from this statement of Mr. Simson's that the density of traffic has little or no effect upon the cost per unit of traffic. It is obvious that counsel has confused the volume of train service, or, as it might be called, the density of train service, with the density of the traffic hauled upon the trains. By this argument, he admits the truth of the very thing for which the appellees contend, which is that where total operating costs are, in a large measure, fixed, and traffic density or the number of traffic units handled is less upon one part of the railroad than another, a higher cost per unit of traffic actually obtains on that part of the railroad which has the lesser traffic density.

Unconsciously, or through a lack of a clear understanding of the proposition at hand, counsel for appellants has, in reality, by his own argument and his own witness referred to, proven the very thing which he set out to disprove, *i. e.*, that a lesser density of traffic necessarily means a higher cots per unit of traffic.

It would seem to be apparent from Mr. Simson's lack of understanding of this proposition that his testimony (R. 897) as to the effect of relative traffic density in Arkansas upon the cost per unit of traffic in that State, is of no value, or, at best, necessarily rests upon sheer conjecture.

The freight traffic density was 20 per cent less and the passenger traffic density 30 per cent less in Arkansas than on the entire railroad in 1913 (see appellants' brief, page 65). If the total freight traffic of the entire railroad were reduced

20 per cent and the total passenger traffic of the entire railroad reduced 30 per cent, the traffic density, freight and passenger, on basis of an average per mile for the entire railroad, would have been exactly similar to the traffic density in Arkansas. It can be mathematically demonstrated that if we reduce the traffic density of the entire railroad to the Arkansas level, and then apply to the traffic of the whole railroad, the Arkansas unit costs developed by the appellees in their exhibits, the resultant figures would come within a hair's breadth of the actual operating cost of the entire railroad. This proves conclusively that, considering the actual conditions of traffic density in Arkansas, the Arkansas unit costs developed by the appellees are sound and accurate. In order to make this proof, it is only necessary to take the appellants' own exhibits, designed to prove that the appellees' Arkansas costs were unsound, and place the entire railroad figures therein, reflecting the volume of traffic, on a parity with the traffic density figures of Arkansas in the same period.

For purposes of this demonstration, we have taken appellants' Exhibit B and the calculations for the year 1913 set forth therein.

If the total traffic—tons, passengers, tons one mile and passengers one mile—of the entire railroad be reduced 20 per cent and 30 per cent, freight and passenger, respectively, the traffic density per mile of railroad is automatically reduced 20 per cent and 30 per cent, respectively, for freight and passenger traffic.

The calculations, based upon appellants' Exhibit B, for the year 1913 reflected therein, are as follows:

The traffic of the entire line for that year is shown in that exhibit to have been as follows:

| | |
|---|---|
| Number of tons | 18,084,016 |
| Number of tons moved one mile | 3,005,714,964 |
| Number of passengers | 10,505,911 |
| Number of passengers carried one mile | 461,608,235 |

Reducing this entire line volume of traffic to the Arkansas level—that is to say, the freight units 20 per cent, and the passenger units 30 per cent—the traffic units of the entire line for the year 1913 would have been:

| | |
|---|---|
| Number of tons | 14,467,212 |
| Number of tons moved one mile | 2,404,571,971 |
| Number of passengers | 7,354,137 |
| Number of passengers carried one mile | 323,125,764 |

Applying to this volume of traffic, the appellees' Arkansas unit costs, set forth in appellants' Exhibit B, we have the following calculations:

| | | | |
|---|---|---|---|
| 14,467,212 tons | ×72.972 cents= | $10,557,013.94 |
| 2,404,571,971 ton miles | × .465 cents= | 11,181,259.67 |
| 7,354,137 passengers | ×17.354 cents= | 1,276,236.93 |
| 323,125,764 passenger miles | × 1.242 cents= | 4,013,221.99 |
| | | $27,027,732.53 |
| Add appellants' mail and express costs, as shown in Exhibit B | | 1,820,778.21 |
| Total | | $28,848,510.74 |

If traffic density of the entire line had been exactly on a par with that of Arkansas, appellants' Exhibit B for the year

1913, would have shown that the cost of operation of the entire railroad on basis of the unit costs developed by the appellees in Arkansas would have been $28,848,510.74, arrived at as set forth in the table immediately preceding.

The appellants' Exhibit B shows that the actual expenses of the entire line for the year 1913 were $28,185,421.16—the difference between which figure and the constructive figure produced on basis of the Arkansas unit costs with the entire line traffic density reduced to the Arkansas level, it will be noted, is approximately 2 per cent.

It is apparent from this that the appellants' Exhibits B, C, D, and E (and they are all of a similar character to Exhibit B, some including lines in Texas and some excluding such lines), when based upon an entire line traffic density properly comparable with that of Arkansas, absolutely confirm and substantiate the very thing they set out to disprove—that is, the accuracy of the appellees' costs per unit of traffic for line and terminal service, freight and passenger respectively, in the State of Arkansas in the year 1913.

In appellees' Exhibit 41, it is shown that the proportion which the total traffic in Arkansas was of the traffic of the entire line, was practically level, varying less than one per cent in the years 1910, 1911, 1912 and 1913. Inasmuch as the miles of railroad operated had not changed throughout those years, either in Arkansas, or of the railroad as a whole, an unchanged relation in the total volume of traffic means necessarily an unchanged relation of traffic density per mile of railroad; so that, while the total volume of all traffic, both in Arkansas and upon the railroad as a whole, may have fluctuated, the relation of

density of traffic in that State to that of the entire railroad had not changed throughout all the years mentioned. It will, therefore, suffice to say that the demonstration, made in this connection with the 1913 figures, is applicable to all of the other figures set forth in appellants' Exhibits B, C, D and E.

Mr. Hamilton was asked by counsel if the terminal cost had any relation to the length of haul. He explained the relation and its effect upon terminal cost very clearly at pages 866 and 867 of the record by comparing the haul of 160 miles, the average length of haul on the entire line, with a haul of seventy miles, the average length in Arkansas. Only two terminal services are required in moving a ton of freight 160 miles, or the average haul for the entire line, while four terminal services would be required in moving one ton 140 miles in Arkansas where the average haul is but seventy miles.

This is illustrated by the witness in answer to questions put to him by counsel. In that connection he said:

"The fact that you handled a ton four times instead of twice may or may not have caused more terminal expense, but when you have set up the actual terminal expense or accumulated it on the basis of the time study or the direct allocation, then each ton that moved into or out of the terminal will bear is burden. There will be a greater expense, and properly so, accruing against a given number of tons of short haul traffic as compared to the same number of tons of long haul traffic. The Arkansas business is a short haul business."

We specially call attention of the court to the testimony of Mr. Hamilton at pages 825-834, 865-869, 880, 885-886, in which he shows conclusively and beyond question that unit cost is affected by density of traffic and by the length of the haul, and explains in considerable detail the causes that

create the differences. (The appellants made no effort to contradict Mr. Hamilton's illustrations and statements). They rest wholly upon a statement contained in Exhibit 4, where, in describing the use of constructive mileage, it was assumed that the average terminal costs in the State per ton and per passenger handled was closely reflective of similar costs on the railroad in other states, and to a partial extract from the testimony of Mr. Hamilton at page 260 of the record in which he stated that he made some examination and found that the cost per ton of handling freight in the two big stations of the railroad in the city of St. Louis had run between 36 and 39 cents per ton, and found that pretty close to the Arkansas average. He then stated that the exhibits in this case embrace all freight, including carload and less than carload, and that it cost much more to handle less than carload than carload freight. That fact explains the expense of handling freight at the two big stations at St. Louis, where all the freight handled is less than carload.

Mr. Hamilton was the first witness introduced in this case and these statements were made before the point developed by Mr. Simson's exhibit was brought out. He did not have in mind in this testimony, nor in the preparation of the exhibit, the question of terminal cost per unit, or comparison of the unit cost between traffic in the State and on the entire line; but we do not regard that as material. It would not matter if Mr. Hamilton and every other witness called in the case had testified that in his opinion the unit cost was level and uniform as between the State and the entire line of railroad. The facts developed in the record as to the class of expense included in terminal cost, the manner in which it is

ascertained, wholly without any reference to the tons or passengers handled, which establishes beyond the shadow of a doubt that a very considerable part of that cost is unaffected by variations in the number of tons or passengers handled in terminals and at stations, rendered it absolutely impossible that the cost per unit should be uniform, unless by accident, even between stations in the same State, where the number of tons and passengers handled varied; and much less can this be so as between traffic in a State where there is a light density of traffic and a short haul, and an entire system of railroad operating in six other States where the density of traffic is from 20 to 30 per cent higher, and the average length of haul more than double that in Arkansas. This proposition is self-evident and beyond question, and the fact that the exhibit in this case assumed, and that Mr. Hamilton assumed, but not in either case in connection with the question we are now considering or with that question in mind, that the Arkansas terminal cost would be fairly reflective of that of the system, can not change the effect of these facts any more than his statement that twice two produced five could be taken to establish that fact; and this disposes of this whole attack upon the Formula, made with such confidence and with so little appreciation of the actual conditions of traffic, by the appellants' witness and the learned counsel.

## APPELLANTS' EXHIBITS H-1, I-1, J-1, K-1, L-1, M-1, N-1, O-1, P-1, AND Z-1.

These exhibits were substituted for exhibits designated as H, I, J, K, L, M, N, O, P and Z, filed by the appellants and in which there were discovered by the appellees' accountants,

errors of very large magnitude. These exhibits refer solely to the earnings and expenses of the railroad in Arkansas for the four months ended December 31, 1907, and treat of such earnings and expenses in the aggregate for all classes of business combined, intrastate, interstate, freight, passenger and mail and express, as such aggregate earnings and expenses were figured by the appellants' accountants.

As will be explained later, the final figure produced in these exhibits and the percentage of return shown, based thereon, were not the result of any actual allocation of expenses, but rested upon a system of averages, and average percentages. In this connection, attention is called to the testimony of Mr. Hamilton at pages 840 to 848 inclusive, of the printed record. In summing up his explanation of these exhibits, Mr. Hamilton said on pages 847 and 848:

"I realize that perhaps the explanation which has been made of the exhibits of the State sound rather involved. But the process that has been employed in their preparation is such a mass of averages, average percentages, mathematical averages, five years average and six years averages, that it is pretty hard to give other than an involved explanation of them.

Now, as to the contrast you spoke about, Mr. Moore: Contrasted with the scheme which I have described, as employed by the State, is the simple and direct method the company has employed in its exhibits, which starts first with a real attempt at direct cost accounting, and an effort to charge the various classes of business, all traffic, with the expenses, upon the basis of the use of the property which incurred those expenses."

We desire to reiterate here the statement that in all of these exhibits offered by the appellants, no effort is made to make any separate showing in regard to either freight or pas-

senger business or intrastate or interstate. With all the labor expended on the exhibits presented by the appellants, through Mr. Simson, the court will not find any instance where the earnings and expenses are separated between freight and passenger, or between intrastate and interstate. The total results of operation show no such division between the various classes of traffic.

Such exhibits, and such results, shed no light upon the investigation in regard to the sufficiency of intrastate rates, freight and passenger.

Upon what theory the appellants were willing to rest their case on the basis of results of the total business of the railroad within the State, is not known. Whether it was because they thought that a determination of this matter would depend upon the results of the total business, or whether they feared to put their methods to a test by applying them to the intrastate traffic as separated from the interstate traffic.

As was pointed out by Mr. Hamilton in his testimony on pages 840 to 848, the appellants made serious errors in their Exhibits H, I, J, K, L, M, N, O, P and Z, having included, as a basis for an averaging process, the earnings of 4,750 miles of railroad and the expense of 5,250 miles of railroad in some instances and the expenses of 5,428 miles of railroad in other instances. This whole proposition of these errors is summed up on page 751 of the printed record, where the testimony of Mr. Simson reads as follows:

"Q. Just to get the matter clearly in the record, I want to sum up this whole proposition and I will ask you if it is not a fact that these numerous errors in your figures, which we have been discussing, run through every one of your Ex-

hibits H, I, J, K, L, M, N, O, P and Z; and if each and every one of these exhibits is not incorrect to the extent that they have set up in them the earnings of the lines north of the Red River, which is the railroad involved in this litigation, and have, on the other hand, in making your computations as to expenses included the expenses in all the periods of from two to five other railroads which are not parties to this litigation or interested in any way therein. Isn't that true?

A. Yes, that is true."

These errors made it necessary for Mr. Simson to prepare other exhibits, and these substitute, or corrected exhibits, were offered as Exhibits H-1, I-1, J-1, K-1, L-1, M-1, N-1, O-1, P-1 and Z-1. The magnitude of the errors made in these exhibits by the State's accountants, is brought out in the testimony of Mr. Hamilton in rebuttal on pages 842 to 844, inclusive, in which it is shown that *so elastic was the process of averaging, used by the State* in arriving at the results shown in its exhibits just referred to, *that errors of from nine to twelve million dollars in the basic figures of earnings and expenses upon which their averages rest, made only infinitesimal differences in the final results obtained*, as between the exhibits containing the erroneous basic figures and those in which such errors had been corrected.

In the opinion of the District Court, page 930 of the printed record, appears the following summing up by the court concerning its findings as to these Exhibits H-1, I-1, J-1, K-1, L-1, M-1, N-1, O-1, P-1 and Z-1:

"In these exhibits, as in all others of Mr. Simson's, no allowance is made, as stated before, for differences in cost, taxes, density of traffic, shorter hauls shown to exist in Arkansas when compared with the entire system, nor any difference in cost between state and interstate, but the road in Arkansas is treated as a part of the entire system, and the assumption acted on that the cost is the same on every part of the system, and also for intra and interstate business, an assumption wholly unwarranted and opposed to all the evidence in the case.

Nor does he make any allowance for decreased earnings, which would have resulted from the State's rates, sought to be enjoined by this action.''

The purpose of the appellants in preparing these exhibits was stated to be to show an average condition for a series of years upon a variety of bases. The figures produced by them in the exhibits purported to show the earnings and expenses of all of the traffic of the railroad of every character within the State of Arkansas—freight and passenger, state and interstate combined—for the four months ending December 31, 1907, and for no other period; and these four months' earnings and expense figures were produced by averaging the entire earnings and expenses of the railroad over a period of five years in some instances and six years in other instances.

EXHIBIT No. 61.

The district judge at the hearing of this cause in the court below, requested Mr. Hamilton, the accountant for the Railroad Company, to prepare for him an exhibit showing one year, which was to be an average of the four years—1910, 1911, 1912 and 1913, reflected in the railroad's Exhibits 22, 24, 25 and 26. This exhibit to show, for an average year of the four years, the earnings, expenses and net return upon the value of the property from the intrastate freight and passenger business in the State of Arkansas, separately. Such an exhibit was prepared and filed as Exhibit No. 61. The situation as to the intrastate freight and passenger earnings and expenses for an average year, of the four years ending June 30, 1913, as shown in this Exhibit No. 61, is referred to in the opinion of the court below at pages 926 and 927 of the printed record. The figures, of earnings and expenses for the intrastate business, freight and passenger respectively, quoted on page 926 of the record are drawn directly from this Exhibit

No. 61 in which it will be seen, by reference to these figures in the court's opinion, that the court has added back to the average revenues for one year, one-fourth of the diminution in revenue which would have been suffered by the railroad had the inhibited rates been in effect; and, further, that the court's caption of "operating expenses" on page 926 of the record includes, in addition to the operating expenses for an average year of the four shown on the first page of Exhibit No. 61, the taxes, rentals and hire of equipment as well.

We call attention to the fact that the figures, on page 1 of Exhibit No. 61, relating to the intrastate freight and passenger business for an average year of the four, show that, on the basis of the inhibited rates, the gross revenue from the intrastate freight business was insufficient by the sum of $12,785.18, and the gross revenue from the intrastate passenger business was insufficient by the sum of $17,877.63, to pay operating expenses, taxes, rentals, and hire of equipment, and that there was no return at all, but an actual deficit from the conduct of these two classes of traffic in the revenues on the basis of the inhibited rates.

APPELLANTS' EXHIBITS Q, R, S, T, U AND V.

Exhibits Q, R, S, T, U and V, all related to the appellants' contentions concerning the assignment of freight revenues to the State of Arkansas, as distinguished from the balance of the railroad, for the four months ended December 31, 1907. These contentions, and the figures in the exhibits referred to, make no distinction between intrastate and interstate freight revenue; but, like the preceding exhibits, treat of the assignment to Arkansas of all freight revenues, intrastate and inter-

state, combined. The appellants claimed, in introducing these exhibits, that the Railroad's General Auditor, in assigning to Arkansas Freight Revenue, intrastate and interstate, combined, had employed bases which were erroneous in certain minor particulars. In current railroad accounting practice, it is necessary from time to time to make certain adjustments or revisions of the freight revenue figures originally credited on the books of the carriers—claims for overcharges in rates, claims for absorption of switching charges, adjustments of rates on through cotton movements, and similar matters are presented after the original entries of revenues have been made on the carriers' books.

On Exhibit Q it is shown that in the four months ended December 31, 1907, the total freight earnings of the St. Louis & San Francisco Railroad on its entire line were $9,283,962.98, and that the adjustment against this amount of revenue for the entire line of the St. Louis & San Francisco Railroad in all states on account of overcharges, switching claims, cotton claims, etc., amounted in the same four months to a deduction from such gross freight revenue as originally entered on the company's books, in the sum of $501,661.84.

There is also shown upon Exhibit Q an adjustment made by the auditor of the railroad against the freight revenue originally credited on the books for these four months for the entire line, amounting to $393,608.01, which is shown to be "adjustments of charges and prepay-connecting lines." This item of $393,608.01 includes also the amount of $255,024.84, shown as the last figure in the left hand column of Exhibit Q as "Net Decrease of Freight in Transit." These matters are explained by Mr. Simson, one of the accountants for the appellants, on

pages 619 and 620 of the printed record. In the first instance, the appellants raised no objection to the character of these adjustments (with the exception of the item of "Freight in Transit," which will be discussed later) of the revenue of the entire line. Their objection went to the apportionment of these adjustments to the State of Arkansas. They claimed that the auditor of the railroad had erred in making his assignment of these adjustments to the State of Arkansas upon the basis of the relationship of the mileage of the railroad in that State to the mileage of the entire railroad, and that the apportionment of these adjustments should have been made on the relationship of the gross revenue earned in the State of Arkansas on freight traffic to the gross freight revenues of the entire railroad. This is conceded by the appellees.

It is the practice, sanctioned by official rate regulating bodies, to allow grain to be milled and cotton to be compressed in transit, charging the local rate into the mill or compress on the raw grain or uncompressed cotton and, subsequently, when the milled or compressed product goes forward from the milling or compressing point, to make certain adjustments of through rates so as to refund a part of the local rate into the mill or compress.

In Exhibit R the appellants treat of such adjustments, made upon the entire grain and cotton milling in transit movement of the entire St. Louis & San Francisco Railroad for the four months ended December 31, 1907, and here again the difference between the State's accountants and the Railroad's Auditor is that the auditor made an assignment of these adjustments to Arkansas on the basis of road mileage as previously explained in connection with Exhibit Q, while the

appellants contend, and we concede, that this adjustment should have been apportioned to Arkansas in the relationship of the gross revenues on these milled or compressed commodities in that State to similar revenues of the entire railroad.

On Exhibit S, the figure of $393,608.01, appearing in Exhibit Q is repeated, and the exhibit simply treats of the assignment of this amount of adjustment of freight revenue as between the State of Arkansas and the balance of the railroad —the Railroad's Auditor having applied a road mileage prorate and the State contending (properly, as the appellees admit) that such an assignment should have been made upon the basis of the related gross revenue as explained in connection with Exhibit Q.

Exhibit T is simply explanatory of Exhibit U, which follows it. It shows the amount of freight earnings in transit in total for the entire St. Louis & San Francisco Railroad at the end of each month for a period of nine years, included in which are the four months ended December 31, 1907, of which the State's accountants treat in its Exhibit "U."

For the information of the court, it may be well to state here in condensed form (as is disclosed in detail by the record in the case) what is meant by "Freight Revenue in Transit."

In addition to taking up on its books, as freight revenue earned, the charges upon shipments which have arrived at their destinations and been accounted for by agents, or connecting carriers, the St. Louis & San Francisco Railroad, each month, also credits its freight revenue account with an estimate of earnings upon freight which is "in transit" and has

not yet been reported as having been received at destination. These estimates credited to freight earnings in the current month's account are adjusted to the actual figures or amount of freight revenue earned on these particular shipments in subsequent months, after such shipments arrive at destination and actual earnings thereon are ascertained. This method of handling is in vogue on a great many railroads and has been for many years.

In Exhibit "U" the appellants' accountants call attention to the fact that in adjusting these freight in transit estimates for the entire St. Louis & San Francisco Railroad, freight revenues for *the entire line* in the month of September, 1907, received an added credit of $197,518.07, whereas, in the month of December, 1907, the adjustment of the freight revenue in transit resulted in a deduction from the freight revenue account of *the entire line* of $452,542.91. The State's accountants claim that this was an abnormal situation, and have, in Exhibit U, reinstated in the freight revenues of the entire line, $255,024.84, the net difference between the in transit credit to September, 1907, freight earnings and the deduction from the December, 1907, freight earnings.

This reinstatement of $255,024.84, they have prorated as between the State of Arkansas and the balance of the railroad on, basis of the gross revenues for these four months before this adjustment was made. The net effect of this was, as shown in Exhibit U, to add to the freight revenues of every kind in the State of Arkansas for the four months ending December 31, 1907, $27,316.22.

In Exhibit V, there is shown first the freight revenues assigned to Arkansas by the auditor of the railroad in his re-

port to the State Railroad Commission for the four months ended December 31, 1907, amounting to $852,610.53, which is the amount appearing in the Railroad's Exhibit No. 27-A as the gross revenue from freight traffic in Arkansas, intrastate and interstate combined, for these four months before the equating process was applied thereto.

To this amount of $852,610.53, the State's accountants in Exhibit V, have added what they determined was the Arkansas proportion of the adjustment set forth in Exhibits R, S and U. The net effect of this is to increase the total freight revenues in Arkansas set up by the Railroad's Auditor as $852,610.53 to the figure which the State's accountants claim is correct, namely: $893,121.69. The appellees' contention concerning Exhibits R, S, T, U and V is, that *none of the adjustments of freight revenue in the State of Arkansas suggested therein by the State's accountants have any relation whatever to, or any effect upon, the intrastate freight or passenger revenues of the company in the State in any of the periods covered by the exhibits in this case.* Analysis and comment in detail on these exhibits is given in the testimony of Mr. Hamilton on pages 834 to 839 inclusive in the printed record.

## APPELLANTS' EXHIBITS "W" AND "X."

In Exhibits "W" and "X" appellants objected to the bases used by the auditor of the railroad in assigning operating expenses to the State of Arkansas, as a whole, for purposes of the original affidavit filed in the case. These figures cover only the four months ended December 31, 1907.

The fact that the auditor of the railroad had a formula for the purpose of assigning expenses as between the various

States through which the railroad operates, and that in assigning, in the month of September, 1907, a portion of the expenses of the entire railroad to the State of Arkansas, he departed from this formula in some minor matters in the compilations affecting that one month's expenses, is discussed at length in the record. A correction of these departures is set forth in Exhibits "W" and "X," the first of which treats of maintenance of equipment expenses, and the second, of sundry transportation expenses. The whole amount of the changes indicated by these exhibits as affecting the expenses assigned to the State of Arkansas, aggregated for all classes of traffic conducted therein—intrastate, interstate, freight, passenger and mail and express is too small to have any effect or material bearing on the case. Further, so far as the appellees' exhibits are concerned, these departures in method by the railroad's auditor in September, 1907, were corrected, as is shown in the testimony of Mr. Hamilton, before the auditor's expense figures for these four months of 1907 were equated to the basis of the new formula, filed as Exhibit No. 1, in the manner previously explained. It may be well to call the attention of the court here to the statement made by Mr. Hamilton at several places in the record concerning the soundness of this equating process to the effect that these departures in method in the month of September, 1907, had been corrected, and that the figures prepared by the auditor of the railroad upon which the equation referred to rests, had been placed upon a uniform basis throughout all the periods covered by the exhibits in this case before such equation was made.

This is shown by the following testimony of Mr. Hamilton:

"In these Exhibits "W" and "X," the State has worked out in detail changes in Mr. Douglas' assignment under his old formula for the months of October, November and December, 1907, so as to make the figures for those three months agree with the departure which Mr. Douglas made in the application of his formula in the month of September, 1907.

The State's accountants have also, in these exhibits, substituted, to some extent, their judgment of what Mr. Douglas ought to have had in his formula for what he really had in his formula.

I think I have said heretofore in the record, and been somewhat criticised for it, that it did not make any difference whether Mr. Douglas divided his expenses by locomotive miles or car miles, or potatoes, or apples—so far as our purpose was concerned, as long as he stuck to his unit, his basis.

After we reworked our Exhibit 27-A to put the one month on a parity with the four years and three months, instead of re-working the four years and three months to put them on a parity with the one month, we had, after that was done in Exhibit 27-A, Mr. Douglas on a uniform basis upon the principle of his formula.

I have said that Mr. Douglas' basis of his formula, when this correction for September is made, becomes uniform and consistent down to June 30, 1913, where our concern with it stops, so far as this issue is concerned." (R. 850, 851.) See Mr. Nay's evidence *supra*. (R. 345-346.)

Mr. Simson also, at page 716 of the record, admits that Exhibit 27-A, by the application of the old or Douglas formula in September, 1907, was put on the same basis as the months that follow.

## EXHIBIT "Y."

This exhibit offered by the appellants purports to be a statement of income and return upon the value of the property in Arkansas for the four months ended December 31,

1907. It makes no segregation of the earnings and expenses which it assigns to the State of Arkansas, as between intrastate, interstate, freight, passenger, mail and express traffic, and it therefore is of no value in determining the matter at issue—whether or not the intrastate freight and passenger rates are confiscatory.

It is a composite of the appellees' Exhibit 27-A and the appellants' Exhibits "V," "W" and "X." All of the figures reflecting earnings in this exhibit are drawn from appellees' Exhibit 27-A, with the exception of the freight earnings which are those arrived at in the appellants' Exhibit "V" after making the adjustments of the assignment to Arkansas of various deductions from, and additions to, gross revenues which have been explained in connection with Exhibit "V," which adjustments had no effect whatever, or, at least, only an infinitesimal effect, upon the intrastate revenues in Arkansas. The operating expense figures appearing in Exhibit "Y" are drawn from Exhibit 27-A, with the exception of maintenance of equipment expenses and transportation expenses, which figures are taken from appellant's Exhibits "W" and "X." As has been explained, the figures in Exhibits "W" and "X" are the result of an adjustment of an error of the auditor of the railroad in applying his old formula in the month of September, 1907, so that in their Exhibit "Y," the appellants adopt the auditor's old formula for the assignment to Arkansas of maintenance of equipment and transportation expenses, but reject that formula in so far as maintenance of way and structures, traffic and general expenses are concerned, and base these expenses upon the result of the equation of the auditor's results under the old formula to the basis of the new

formula filed as Exhibit No. 1. Here we have a hybrid proposition which does not rest firmly upon any one basis, but is a composite of two bases, to neither of which the appellants' witnesses adhered, as was developed when Mr. Simson, at page 641 of the record, stated that, considering all of the exhibits offered by the appellants, Exhibit "O" (afterward changed to "O-1"), reflected the facts which they desired to stand upon in this case.

Explanation has previously been made of Exhibits "Q," "R," "S," "T" and "U," all of which are crystallized in Exhibit "V" and Exhibits "W" and "X" have also been explained. Now, Exhibit "Y" is the concrete presentation of the effect of all of these Exhibits, "Q," "R," "S," "T," "U," "V," "W" and "X," and brings all of the calculations and data set forth in them down to a final showing of return upon all of the business of the railroad within the State of Arkansas—*intrastate, interstate, freight, passenger and mail and express all consolidated*—as determined by the appellants' accountants for these four months. So, when Mr. Simson, the principal accounting witness for appellants, who prepared and introduced these exhibits, testified that they stood on Exhibit "O," he discarded the remaining exhibits—"Q" to "Y," inclusive—and we submit that they should be disregarded and dismissed from consideration by the court.

## APPELLANTS' EXHIBITS "AA" AND "BB."

As explained by Mr. Simson on pages 628 and 629 of the printed record, Exhibit "AA" is made up simply by copying the total expenses, earnings, taxes, etc., in Arkansas, from the appellees' Exhibits 20-A, 22 and 23, which earnings, expenses,

etc., are those of the year ended June 30, 1913, and which, as we have shown, were actually assigned and allocated to the State of Arkansas by the appellees on basis of their formula, Exhibit No. 1, but which exhibits were subdivided by the appellees, also, in accordance with the formula as between the intrastate and interstate, freight and passenger and mail and express business. On the pages of the record referred to, there is a reference to an adjustment of a rental item, known as the "Kansas City, Fort Scott & Memphis Railroad—Guaranteed Dividend." This is the item that was eliminated at the suggestion of the court, and the result of such elimination shown in the appellees' Exhibit No. 28 *supra*, pp. 55-56. So therefore, appellants' Exhibit "AA" is wholly based upon and quotes verbatim figures as to earnings, expenses and other charges which were produced by the appellees, as one step in the process of determining results of the intrastate freight and passenger business in Arkansas, but the appellants, in filing this exhibit, do not show to the court any such separate results, *contenting themselves with showing the return upon the entire business in Arkansas of every class and character combined,* including both intrastate and interstate.

Exhibit "BB" is similar in nature to Exhibit "AA," but the earnings and expense figures included therein are those assigned to the State of Arkansas under the railroad's old formula and which were used by the railroad simply as a background of comparison to obtain percentage relationships between the old formula and the new, to be used in equating the figures obtained in years prior to 1913 under the old formula to the basis of the new formula. Here again *the appellants have simply shown a figure of return upon the entire business*

of the railroad in Arkansas on the basis of the company's old formula. They have included in Exhibit "BB" an adjustment of the expenses of the Memphis terminal which is fully described in Exhibit "G," and by reason thereof added to the expenses in Arkansas, for every character of business combined as determined under the company's old formula, the sum of $72,107.48. It will be observed that no such adjustment was made in connection with Exhibit "AA," which quotes the expenses assigned to Arkansas under the railroad's new formula (Exhibit No. 1), and that there is no controversy as to the actual assignment of expenses to Arkansas under the new formula. Mr. Simpson explains Exhibit "BB" on pages 629 and 630 of the printed record.

Just what aid or information to the court these Exhibits "AA" and "BB" could possibly be is not apparent when we consider that the problem to be dealt with is the return upon intrastate freight and passenger business only. These exhibits deal with the return upon the entire business of every character, intrastate, interstate, freight, passenger and mail and express combined, within the State.

Before passing from the discussion of these exhibits, it will be well to call attention to the fact, as shown by testimony of Mr. Hamilton on page 852 of the printed record, that during the year ended June 30, 1913, which is the period covered by these two exhibits, the railroad was charging an intrastate passenger fare of three cents per mile and rates on basis of what has been known as the "Court Tariff" for freight transportation, in Arkansas. The rates sought to be enjoined were a two-cent passenger fare and a basis of freight rates much lower than the "Court Tariff;" so that, appellants' Exhibits

"AA" and "BB," even as to the total traffic of every character within the State, overstate the net income and percentage of return upon the value of the property which would have been earned had the railroad been charging the two-cent intrastate passenger fare and the freight rates prescribed by the Arkansas Railroad Commission which were sought to be enjoined.

The whole situation as to these Exhibits "AA" and "BB" is tersely stated by the witness Hamilton on pages 851, 852 and 853 of the printed record.

## APPELLANT'S COMMENTS ON THE COURT'S FINDINGS.

At the conclusion of their brief the counsel point out errors which they contend the court made in its findings based on the evidence.

They first call attention to the statement by the court on page 916 of the record that the average value of the property for the four years 1910 to 1913, inclusive, under the stipulation was $17,924,441.75, and that the gross earnings in the State for the four years was $16,688,486.86. These figures were taken by the court from the first sheet of Exhibit 61, which is a compilation made from exhibits filed by appellees, numbered 22, 24, 25 and 26, and based on the stipulation as to value which appears on pages 906-907 of the record, and it is a correct statement of the average stipulated value for the four years. The statement by the court as to the gross earnings is not based on any stipulation, but is the result of averaging the actual earnings shown in exhibits 22, 24, 25

and 26, which shows the earnings of each one of those years and is undisputed.

The statement by the court that it was shown by the undisputed evidence that the four years referred to were normal is absolutely correct, and there is not a scintilla of evidence in the record to the contrary. The further statement and finding on the same page that the months of November and December, 1913, were normal is based on the evidence introduced and on Exhibits 34-41, which have been discussed by us in connection with that subject, and the finding is clearly sustained by the evidence.

Counsel say that the court has not understood Mr. Mayer's evidence. We have already called attention at some length to the evidence of that witness, and are unable to find any particular in which the summing up by the court indicates a misunderstanding of the positions taken by him and his evidence in support of his views. A careful reading of Mr. Mayer's evidence, and particularly his statements on cross examination, will justify the views expressed by the court in regard to it.

It is stated that the court misapprehended the correction of the terminal costs and line costs as made by the State. A reading of he opinion on pages 925 and 926 shows that the court did not misapprehend the bearing of the testimony in either of the aspects pointed out by counsel. This question has been discussed at some length in this brief and we think the finding of the court as to the effect of the correction is not only sustained by the statements of Mr. Simson himself, which are quoted in the opinion, but by all of the evidence introduced on both sides. On page 927-928 of the opinion, the court says that the result would not differ materially if

the figures of the State's acountants were accepted and applied to the intrastate business, although they are made on the basis of net earnings of the entire system. In commenting on this statement counsel say that the court overlooked the fact that the calculations made on the net intrastate earnings were based on the extra costs of intrastate freight and passenger business developed by the test made in 1913. In other words, the position of counsel is that the court erred in its findings. We would only add to what has heretofore been said in the discussion of the test that if there is any one fact which is completely demonstrated from the practical operations of the road in handling and transporting freight and passengers it is this fact. The result may not be agreeable to counsel, but it represents actual conditions ascertained and developed from day to day. There can be no question, and we submit that it constitutes the very highest degree of evidence that could be produced upon the question as to the comparative cost of conducting the two classes of business.

Counsel, in referring to a statement at page 930 of the opinion in connection with Exhibit "O," that the Douglas Formula was discarded because found to be erroneous, say on page 92 of their brief:

"Mr. Hamilton admitted many of these errors and criticised not the Douglas Formula but the Company's Formula for dividing passenger and freight which was used for comparative purposes.

Mr. Hamilton's criticism may also have run to the Formula for assigning to States, but the evidence is not so understood. The point, however, of this reference is merely to show that the court misapprehended the force of the various exhibits based on the old Formula contrasted with the new formula as he evidently believed, as shown by this quota-

tion, that the old Formula was discarded by everyone, and no value could be attached to it, whereas Mr. Hamilton repeatedly stated that there was little difference between it and the new Formula, and evidently his criticisms which the court had in mind were of the Formula used by Mr. Douglas and the railroad for separating passenger and freight, which was only used for their operating comparisons as stated in Exhibit No. 23."

A perusal of the record will show that the court's opinion, criticised by counsel in the language quoted, is based upon a sound understanding of the facts as disclosed by the record. In order to clear up this entire matter, which seems to have been thoroughly misunderstood by counsel, it will be well to state just what this whole matter relates to.

Prior to the divising of the Formula filed by the appellees as Exhibit No. 1, the railroad, for purposes of its own operating comparisons, and of making approximate reports to State Railroad Commissions, had a rough hewn Formula for assigning expenses to States, and between freight and passenger services. This has been referred both to as the "Douglas Formula" and the "Old Formula." Counsel now, on page 92 of their brief, adds a new designation, "The Company's Formula." These three Formulas are one and the same and they have no relation to, or connection with the Formula filed as Exhibit No. 1, and the use made by the appellees of the figures compiled under the "Douglas Formula," the "Old Formula," or, as counsel now term it "The Company's Formula" was, as has been explained carefully in connection with Exhibit No. 23, only as a back ground of comparison, or equation, in carrying the concrete result of the new Formula, filed as Exhibit No. 1, as it was applied in detail in 1913, back to prior periods. In using the results

of applying the Old, or Douglas Formula, for purposes of equation, the railroad's accountants discovered that in one month, 1907, Mr. Douglas—the auditor of the railroad, *who had no connection with the preparation of the data under the new Formula,* (filed as Exhibit 1)—had, through error, departed from the text in applying the Formula known as the Douglas or Old Formula. In order that the equating process might be sound, these errors were corrected and Mr. Douglas, application of his old Formula placed upon a uniform basis throughout all of the periods. This is explained in testimony of Mr. Hamilton which has been quoted elsewhere.

In the quotation from counsel's brief, statement is made, that "Mr. Hamilton repeatedly stated that there was little difference between it (the Old or Douglas Formula) and the new Formula (Exhibit No. 1) and that it appears his criticisms which the court had in mind were of another Formula used by the railroad for separating passenger and freight." Counsel has patently misunderstood this entire proposition. What he speaks of as two Formulae, one for assigning expenses to states and one for separating expenses between freight and passenger, were both embraced in the process known as the "Douglas Formula," the "Old Formula," and now, as counsel designates it for the first time, the "Company's Formula." That Mr. Hamilton did discard the Old or Douglas Formula, except as a back ground or basis for the equation of expenses of prior years to the basis of the new Formula, Exhibit No. 1, is a fact, as is disclosed by the testimony, and, therefore, counsel's whole criticism of the court in this connection is unfounded. We have deemed it necessary to make

this rather lengthy explanation as the statement contained in the appellants' brief is calculated to muddy the waters and be misleading.

At page 93 of counsel's brief, reference is made to the court's findings concerning an alleged error of $23,000 in the Memphis Terminal expense, assigned to Arkansas, as set forth in appellants' Exhibit "G." Counsel neglects to state, as a reference of the record will disclose, that the effect of this correction was to add the amount stated to Arkansas expenses without any accompanying addition to the revenues assigned to Arkansas. Upon testing this matter out, it was found that the effect of correcting this difference of $23,000 would be insignificant, just as the court is criticised on page 93 of counsel's brief, for stating it would be, and, therefore, although this correction if made would have inured to the benefit of the appellees' contentions, it was not made on account of its insignificance in effect upon the ultimate result.

On this same page of the brief, counsel refers to appellants' Exhibits "V," "W" and "X," and makes the statement that "they show errors" to such an extent that the return in the four months of 1907 would be increased to 6.53 per cent.

The court's attention is directed to the discussion of these particular exhibits at pages 153-160, *supra*, and to the quotations from the record in connection therewith, in which it is shown that the matters covered by these exhibits were not errors, but differences of opinion between the State's accountants and the railroad's auditor, as to how certain ad-

justments of revenue should be made and certain divisions of operating expenses applied.

Exhibit "V" deals solely with revenues for the four months of 1907. In the testimony of Mr. Hamilton (R. 836-840) which is uncontradicted, it is shown that the adjustments of revenue set forth in Exhibit "V" have relation only to the interstate traffic and do not in any way affect the intrastate traffic.

Exhibits "W" and "X" deal entirely with the apportionment of operating expenses to the State of Arkansas, in the four months of 1907, under the Old or Douglas Formula. That all of these matters have been corrected and those corrections reflected in the appellees' Exhibit 27-A is admitted by Mr. Simson at page 716 of the record.

It is apparent, therefore, that after the appellees had filed their Exhibit 27-A, none of these Exhibits, V, W, and X, or Exhibit Y, in which they are summarized, had any bearing whatever upon the earnings, expenses, or net return upon the intrastate business either freight or passenger in Arkansas, further confirmation of this is found in the uncontradicted testimony of Mr. Hamilton, which is referred to or quoted (*supra*, 158, 160) in connection with the discussion of appellants' Exhibits Q, R, S, T, U, V, W and X. *The percentages of return quoted by counsel in this connection, apply to the entire business in the State of Arkansas, freight, passenger, intrastate, interstate and mail and express combined.*

These alleged errors on the part of the court are embodied in pages 90 to 93 of appellants' brief. They are either

misleading or trivial. None of them rest on any solid foundation, and we respectfully submit that the findings of the court in the particulars referred to and in the result arrived at are sustained by the evidence.

## SOME MATERIAL ERRORS IN APPELLANT'S BRIEF.

At page 47 of their brief, counsel say that the court's statement of the reasons for the extra cost of intrastate over interstate traffic is almost identical with the testimony reviewed by Mr. Justice Hughes in the Minnesota Rate Case (230 U. S. 352, 462-464).

The testimony in the Minnesota Rate Case, referred to, rested solely upon the expert opinion of railroad operating men. In this case it rests on an actual determination of the facts based on the test conducted in the stations, in the yards, on the trains—in fact, throughout every activity of the railroad, concurrently with its every-day operation in a representative test period; so, it is apparent that the court's findings of an extra cost of intrastate over interstate traffic should not bear the stigma of resting upon testimony similar to that previously rejected by this court.

This question of extra cost is discussed at pages 45-49 of their brief, in which the claim is made that the only extra cost of intrastate over interstate is to be found in the fact that the intrastate incurs two terminal costs to the interstate one. It is also argued that the higher intrastate freight rates compensate for this extra cost, thus attempting to blend two separate and independent matters. The rates cut no figure in ascertaining the cost of transportation, and whether or not

they are compensatory can only be determined by ascertaining the cost of conducting the traffic, without any reference to the rates, or revenue, derived therefrom, and subsequently comparing the cost of traffic with the revenues derived from it. Appellees pursued the only proper, or possible, method of determining the cost of the various classes of traffic, by ascertaining through tests, in actual operation, the cost of intrastate business, and then deducting such cost from the intrastate earnings, in that way obtaining the resultant net gain or loss. Counsel say the fact that there is some return upon the total business, intrastate and interstate combined, makes the result shown by the appellees' exhibits grotesque. This mode of reasoning is a mere juggling of words, and only serves to confuse the issue and becloud the truth.

At page 47 of their brief counsel state that:

"There are certain statistics in this record approved by the railroad's accountants which effectually dispose of any theory that the net results of the intrastate are not as compensatory as the net results of the interstate."

And the further statement that:

"These figures were compiled by Mr. Simson and approved by Mr. Hamilton."

In support of this statement, counsel refer to pages 874-876 of the record. The facts in this connection are that, upon cross examination, Mr. Hamilton stated that certain figures of average gross revenue per ton mile computed by Mr. Simson had been correctly calculated. This will be found at the pages of the record previously referred to. There was no reference whatever to the subject of operating expenses by the witness and no conclusions as to net gain or loss, simply a

statement as to gross revenues per ton mile. How this statement by the witness can be construed as it has been by counsel in the instance mentioned is past our understanding.

Counsel, in criticising the result of the test as reflected in the excess cost of conducting intrastate over interstate traffic, call attention to the fact that the terminal cost per ton of handling intrastate freight and passengers is the same, and draw therefrom the conclusion that there should be no difference except in terminal cost. They overlook the fact that there not only is a double terminal expense on each ton of intrastate freight, growing out of the fact that it has two terminal handlings as compared with one terminal handling of each ton of interstate freight, but also the further fact that as the haul decreases in length the spread of terminal cost is very much larger per ton mile than it is over the longer hauls. The average haul of intrastate freight in Arkansas is twenty-five miles; of interstate freight, it is eighty miles. It is apparent at a glance that when you spread two terminal costs of a ton of intrastate freight over twenty-five miles, you get a very material increase over the cost per ton mile obtained in the spread of one terminal cost over an eighty-mile haul of interstate freight. They also assume that the line cost per ton mile is the same for both classes of freight. That is true when carried on the same train, but counsel overlook the fact that the loading of the local trains is very much lighter than the loading of the through trains; that the local train is a more expensive train per mile to operate than the through train, by reason of having a larger crew, and the fact that the local train requires a longer time on the road to make a given train mileage, and that a very large proportion of the

intrastate freight, and a very small proportion of the interstate freight, is carried on local trains.

Counsel direct attention to the fact that 85 per cent of the freight carried on the local trains is interstate and 15 per cent intrastate, and say that:

"It is rather difficult to see how the heavier expense of the local train can work out a heavier expense for the intrastate traffic when over 85 per cent of its load is interstate traffic."

The proportions of freight which go to make up the total loading of the local trains, and which are reflected in the percentages quoted by counsel, have no real bearing upon the question. On page 1 of exhibit 6, there is set forth separately the net ton miles of revenue freight carried on through trains and on local trains in Arkansas, subdivided in each case between intrastate and interstate. These figures show that of the interstate freight, 36,860,653 ton miles was carried upon through trains and 7,976,402 ton miles upon local trains—or, stated in percentages, 82 per cent of all the interstate freight was carried upon the less expensive through trains and only 18 per cent upon the more expensive local trains. The exhibit shows in the same table that of the intrastate freight, 472,506 ton miles were transported upon through trains and 1,343,339 ton miles were transported upon local trains. Expressed in percentages, the figures show that 74 per cent of the intrastate freight was transported upon the more expensive local trains and 26 per cent upon the less expensive through trains. With 74 per cent of the total intrastate freight and 18 per cent of the total interstate freight carried

upon the more expensive local trains, counsel's contention, as quoted above, ceases to be of any force.

It should be obvious that when the line expenses are divided between intrastate and interstate freight upon the basis of the net ton miles of each class of traffic carried on the through and local trains respectively, in the manner described in appellees' exhibits, there will necessarily be a very material excess of cost per ton mile for intrastate, as compared with interstate business, for line expenses alone, to say nothing of the double terminal cost and the short haul of the intrastate traffic.

The same conditions making for the extra cost of transporting intrastate as compared with interstate freight obtain with intrastate and interstate passenger traffic, as the same methods of ascertaining the extra cost of the intrastate over the interstate have been employed as in the case of the freight traffic, except that instead of the distinction between through and local trains appellees have segregated the travel in ordinary coaches from that in Pullman cars, as is explained in the exhibit.

At page 72 counsel, in discussing the matter of apportioning values on basis of apportionment of operating expenses, states that:

"An error, however small, in the assignment of these expenses quickly runs into big figures in their application to the property values."

And makes a hypothetical illustration of a railroad property, valued at $16,000,000, having operating expenses of

$100,000, which have been assigned 50 per cent each to the freight and passenger services. The illustration assumes an error of $1,000 in the apportionment of these expenses, which, if added to the passenger expenses as a matter of correction, would make the passenger percentage of operating expenses 51 per cent. The illustration then points out that this corrected percentage, applied to the valuation of $16,000,000 would throw $160,000 more property value to the passenger side, and that it would require $9,600 of net income from passenger sources to make a return of 6 per cent upon this additional $160,000 property value.

The fallacy of this illustration is apparent, and it lies in the inconsistent relation of the valuation and operating expense figures assumed. Inasmuch as counsel spoke of a 6 per cent return, it is evident that the period intended to be taken for the illustration is one year. To assume that the total expenses of a railroad property which was valued at $16,000,000 would be but $100,000 per annum is utterly inconsistent with common knowledge. Exhibit 61, filed in this case, shows the value of the property (by stipulation) to be $18,000,000 in round figures, and in operating this property for a year, the same exhibit shows that operating expenses of over $3,000,000 were incurred. The most elementary knowledge of railroad operation would make it plain that a railroad property sufficiently large to be valued at $16,000,000 could not be operated for an entire year with an outlay of only $100,000 for operating expenses. Taking counsel's assumed error of $1,000 and substituting $3,000,000 for the hypothetical figure of $100,000 operating expenses, it follows that the percentage of error which would affect the division of property values is thus re-

duced to *three one-hundredths of one per cent.* When this percentage is applied to the $16,000,000 property value, the amount of property transferred, as in counsel's illustration, to the passenger side, is only $4,800 instead of $160,000, as suggested. To produce a difference of one per cent, as the result of an error, in apportioning expenses on a railroad with a value of $16,000,000 and with operating expenses properly proportioned thereto, namely, $3,000,000, the hypothetical error in distribution of expenses between the freight and passenger services would have to be $30,000 instead of $1,000, as assumed by counsel in their illustration. The fundamental error in the illustration consists in the improper relationship of the operating expense and property value figures quoted as a basis for the illustration.

As to the error of $23,000 in connection with which the hypothetical illustration was made, it can be stated that if worked out to a conclusion in conjunction with the appellees' exhibits, it will be found that the $23,000 applies, not to freight or passenger alone, but to both, and when worked out to an ultimate conclusion on the appellees' basis, makes no difference whatever in the distribution of the property values between those two classes of traffic.

In this connection, it should be remembered that in the hypothetical illustration used by appellants, the error in operating expenses is all thrown to one side, whereas, the difference of $23,000 referred to is spread over both the freight and passenger business.

At page 73 counsel say, with reference to the matter of equating the expenses of prior periods on basis of 1913 results:

"It is a self-evident proposition that the assignment to Arkansas as a whole can not be affected by a redistribution of part of those costs between freight and passenger. The proposition was dealing entirely with the amount of expenses assigned to Arkansas and not their distribution."

This refers directly to the matter of equating the interstate Commerce Commission accounts, either piecemeal, or in total for each of the four general groups, which is discussed at length on the same page. It is evident that neither counsel nor the accountants for the appellants have understood the equating process. In order to assign expenses in the prior periods, it was necessary either to apply the new formula (Exhibit No. 1) in detail in those prior periods (and why this was impracticable has been elsewhere stated) or to reflect the processes of the new formula in those prior periods by a process of equating 1913 results obtained thereunder. From criticism made by counsel, it is apparent that they have considered but one of the results which the equation was designed to effect, that is, the assignment of expenses to the State of Arkansas. The processes of the new formula, which it was necessary to carry back through an equation, were three in number; the assignment of the expenses to the State, their subdivision between the freight and passenger services, and the adjustment of the company material, or nonrevenue costs, between the freight and passenger services. These three steps were worked out in detail in 1913, and it was necessary, if the new formula was to be properly reflected in the prior periods, that all three processes should be carried back, through an equation. In the figures prepared by the appellant's accountants, and discussed on page 73 of the brief, only one of these

processes was worked out, namely, the assignment of expenses to the State.

This is the criticism of the equating method made by the accountants for the appellants, and it was the complete working out of all three processes that practically reversed the results obtained by them, as discussed at page 73 of the brief.

At page 9 counsel say, referring to appellees' exhibits 27-A and 28, that they were filed to correct mistakes which had occurred in Exhibit 27, which is characterized as the final summary of the appellees up to that time.

Counsel seem to have no clear conception of the contents of these exhibits. Neither of them is a final summary. Exhibit 27-A, and its predecessor, 27, covered only the four months of 1907. Exhibit 28 applies to all of the four years and the four months appearing in Exhibit 61, and simply shows the effect of eliminating the rental charge of the Kansas City, Fort Scott & Memphis Railway, which was done at the suggestion of the court. Counsel also refer to the revision of Exhibit 27, which is reflected in Exhibit 27-A, and state that Exhibit 27 needed "reduction to better bases to make it reflect the actual condition of affairs," and then refer to appellants' Exhibits V, W, X and Y. The fact in connection with this matter is that the accountants for the appellants sought to substitute their judgment of bases for division of expenses, for the formula of the railroad, and the reference to this particular matter as an "error" is in itself erroneous. (Testimony of Hamilton) (R. 271-287.)

At page 17 counsel, in discussing the division of value of tracks and facilities between freight and passenger, and line

and terminal, have assumed that all such divisions were made in the ratio of the amount of maintenance expenses of such facilities charged to each of said classes of service. They overlook the fact, as shown by appellees' Exhibit 18, that the value of many individual facilities was directly allocated to freight or passenger or line or terminal, on account of the exclusive use of such facilities by one of these classes of service.

At page 18 it is stated that the appellees have apportioned the "original cost of roadway and structures between the various classes of traffic." It is true that the valuation made by the chief engineer of the railroad reflected the original cost of the property, but this value went out of the case when the stipulated value was substituted for it, and it is upon this stipulated value that the final showing made by the appellees in Exhibit 61 is based. Attention is further called on this page to the fact that the appellees divide certain roadway and structures values on the basis of transportation expenses, instead of using maintenance-of-way expenses for that purpose, as prescribed in the formula. The record shows that subsequently the appellees for comparative purposes made this division on basis of the maintenance-of-way expenses and that the difference in the results obtained was negligible.

At page 19, the testimony of witness Mayer is referred to, in which he claimed that the formula (Exhibit No. 1) is in error in classifying the making up and breaking up of trains as a line expense, and that by reason of charging such expenses to line, intrastate freight traffic is charged with expenses not incurred by it.

The fallacy of this position has been shown by Mr. Hamilton (R. 859-861, 876-877), and Mr. Mayer ultimately was made to admit its fallacy on cross examination (R. 693-700).

On this point, see the opinion of the court (R. 920).

At pages 25 and 26 counsel state that the four months of 1907 was an unfair period of inquiry, because of the great panic which began in that period, by reason of which, it is claimed that the revenue of the railroad was seriously affected.

The statement that this was not a normal period is contradicted by the statistics contained in Exhibit No. 35, which show that the earnings of the four months of 1907 were larger in proportion than in any succeeding year down to and including 1914; but, if this statement had been correct, the fact would be immaterial, as the issue in this case does not depend upon the normality of 1907. Those four months were used in the application for preliminary injunction because they were the most available at that time, but as the four years subsequent to that period, which are used in this case, show that the inhibited rates were confiscatory, it does not matter whether the 1907 period referred to was normal or abnormal.

At page 29 it is stated that, by rearrangement of the "in transit" freight earnings, or what has been referred to in the record as "lap-overs," on the basis indicated in appellants' Exhibit "U," the Arkansas gross freight earnings in the four months of 1907 would be increased $27,316.22.

Counsel neglected to call attention to Mr. Hamilton's testimony at pages 835 and 836, where he stated that he made

a careful investigation of the company's records to determine the facts in connection with this matter, with the result that it was shown that in the four months of 1907 the intrastate freight in transit amounted to only $473.13. This omitted testimony also shows that the intrastate "lap-overs" (so-called) "wiped themselves out" in the four months' period, as the witness, in the testimony which is quoted on page 29, said they would do.

It is also stated on this and the following page, that Mr. Douglas followed his formula in September and departed from it in the three months following, *which is the reverse of the facts.*

It has been shown in the record that the figures obtained on the basis of the old, or Douglas, formula were used only as a back ground for equation. This has been explained at length, and further that these *inconsistencies in the application of the Douglas formula in the one month were carefully corrected before the equation was made.*

It is stated on page 30 that Mr. Hamilton did not dispute the propriety of the formula used by Mr. Douglas.

Reference to the record will show that he disapproved it *supra* 62, and only used it as a background for the equating process, and counsel admit elsewhere that Mr. Hamilton has condemned Mr. Douglas' basis as *academically* unsound.

At page 45 reference is made to the appellees' Exhibit 58, in which taxes, hire of equipment and value of property are average for a series of years. Counsel quote Mr. Hamilton as saying (R. 850):

"That he does not believe in the exhibit prepared by himself."

This is only a partial quotation and is misleading, as by reference to the testimony (R. 849, 850) it will be seen that he produced this exhibit simply to carry the *hypothetical averaging system used by the appellants,* relating to earnings and operating expenses, to taxes, hire of equipment and property values. He says (R. 850):

"I wanted to make the averaging process throughout consistent, so I followed it out to the last detail."

And further:

"I do not believe in the averaging system but on that system this is what it shows when you carry that system into all of the phases of the proposition."

At page 70 counsel say:

"Mr. Hamilton attempts to defend the engine ton mile, which he admits is brought back through the equating process (from 1913) to the four months of 1907, by showing it differed but little from the revenue train mile."

This is a partial quotation taken from pages 854 and 855 of the record. At page 878, referring to his testimony on pages 854 and 855, Mr. Hamilton shows that the foregoing statement is based upon a complete misunderstanding of the record. Counsel again refers to this same proposition at page 77 of their brief, and again make the same mistake as appears on page 70, referred to. This matter has been fully set forth *supra* 101, 102.

## QUALIFICATIONS OF WITNESSES.

Counsel attempted to compare the qualifications of Mr. Simson with Mr. Nay and Mr. Mayer with Mr. Hamilton.

Mr. Nay has had thirty-one years' railroad experience and at the present time, and for some years past, has been and is the chief accounting officer of one of the largest railway systems in the world—the Chicago, Rock Island & Pacific Railway. His experience has brought him into constant touch with all of the activities of a railroad, which must necessarily find their ultimate record in the accounting department, or upon the statistical records kept by carriers. Mr. Nay has not been a railroad accountant alone, although that occupation affords opportunities for the broadest grasp of information pertaining to the details of railroad operation. He has also been a devisor and compiler of railroad operating statistics. His testimony in this case shows an intimate familiarity with all the details of railroad operation.

Mr. Simson was employed in railroad service but eleven years, and his last railroad experience was in 1901, fourteen years before he appeared as a witness in this cause. The record discloses that in all his railroad experience, he had not progressed beyond the position of a chief clerk, a general bookkeeper or traveling accountant, engaged in checking up the affairs of station agents. Counsel refer to his experience in commercial accounting practice, as a member of the staff of Haskins & Sells, and the fact that, as an employee of this concern of public accountants, he has been occasionally engaged in the verification and auditing of railroad accounts. This is the total of his railroad experience. He has never held an executive position, nor one of such a character as would give him an insight into the details of railroad *operation,* such as Mr. Nay has enjoyed and improved as his testimony shows, coupled with the fact that such railroad expe-

rience as he has had, terminated fourteen years ago, while Mr. Nay's experience has come continuously down to the present day; and that Mr. Nay's experience and knowledge has been constantly broadening is indicated by his advance in railroad service. Mr. Simson can not be properly compared with Mr. Nay.

Counsel refer to Mr. Hamilton as having had railroad experience of an accounting nature only; this misunderstanding has been due to their lack of familiarity with the character of railroad work embraced in the duties attaching to the positions which Mr. Hamilton has filled in his seventeen years' railroad experience. The facts are that he has been engaged in practically every line of railroad work, and for many years was employed in stations, yards and terminals, where the practical every-day operation of the railroad is carried on. He has been employed, not only in the operating department, but the traffic department and the accounting department as well. His opportunities for observation of every detail of practical operation have been numerous and have covered a long period of time. His intimate knowledge of these subjects is shown by his familiarity with the minutest details of operation, disclosed by the testimony. Since January, 1912, he has been the personal representative of the operating vice president (now one of the receivers) of the St. Louis & San Francisco Railroad, employed particularly in the investigation of operating conditions and operating results at first hand through daily contact with all branches of the service from the section foreman to the general manager. His duties have been to analyze all of the operations of the railroad, to recommend betterments of such operating conditions and prac-

tices to the management, and to present information to the executives of the railroad as to the progress and conduct of the company's business in general and in detail. The careful and minutely detailed way, in which the tests reflected in the exhibits in this case were planned and carried out by him, is evidence of his intimate knowledge or railroad operation. The position he now holds—supervisor of efficiency—reporting directly to the receivers of the railroad, indicates the views of the executive officers of the railroad as to his capacity and knowledge of the economics of railroad operation.

Mr. Mayer, at the time he testified in this case, was an employee of the Oklahoma Corporation Commission, and had had eleven years' railroad experience, beginning as a section laborer on the Burlington Railroad, followed by a few months' service as a freight brakeman, with a return to work as a laborer. He was then employed in minor clerical capacities, finally becoming a clerk in the president's office of the M., K. & T., which latter employment he refers to as "in an executive capacity." His last experience was in the accounting department of the same railroad, covering, altogether, fourteen months. Counsel speak of his practical railroad experience having been as much or more than that of Mr. Hamilton, and quote him as authority on matters which could only be passed upon by a trained civil engineer or mechanical engineer, although Mayer, on cross examination, admitted that he had no training as an engineer, and showed by his testimony that he had no knowledge of many important matters connected with the subject on which he was testifying. He had never occupied a position in railroad service which would give him a broad and coherent view of the whole railroad

problem, as had the witnesses for the appellees. He has never been employed in other than minor capacities, and the record discloses that he had never improved his opportunities to broaden his views even in those minor positions, as is shown by his ignorance of the most elementary railroad matters.

Another witness for the appellees was J. A. Frates, general superintendent, having at the time he testified exclusive charge of the operation of 2,700 miles of the St. Louis & San Francisco Railroad, a little more than one-half of that system. He had had thirty years' railroad experience in practically every capacity in the operating department, the last fourteen years of which had been on the railroad of which he is now general superintendent. His intimate knowledge and clear understanding of railroad operating practices and details is apparent throughout all his testimony. He controverted many of the contentions of Mr. Mayer and it is apparent from his testimony that his statements rests upon a thorough knowledge of actual facts and conditions, and not on the conjectural or hearsay matter which underly many of Mr. Mayer's statements.

Mr. Symons, whose testimony was attempted to be overcome by Mr. Simson, is shown not only by his record in railroad service, but by his testimony in this case, to possess very thorough knowledge of all phases of practical railroad operation and intimate knowledge of his own peculiar field—railroad mechanics, not only in itself, but in its relation to all other branches of railroad operation, and that his advice and counsel is sought after by railroad operating officials all over the country. Mr. Simson, whose testimony was offered for

the appellants in opposition to that of Mr. Symons, admitted that he had no experience, upon which to base his conclusions, or practical knowledge whatever of the subject.

## APPELLANTS' COMMENTS ON EXPERT TESTIMONY.

Counsel assume that the case made by appellees rests upon expert opinion. That is not the fact. The proof rests upon the formula for dividing operating expenses, charges, etc., which has been filed as Exhibit No. 1 in this case. This formula does not need expert opinion to support it, but, it does require an intimate knowledge of operating conditions in modern American railway practice. In support of the formula no opinion evidence has, in reality, been used, except the opinion of Mr. Symons in regard to the division of equipment repairs. Reasons in support of it, resting upon a knowledge of operating facts have been given by men who had such knowledge intimately and at first hand. A large number of expert railroad men, expert in the sense of experience in every branch of railroad service, collaborated in the preparation of this formula, the names and official capacities of these men are listed in the formula.

In previous rate cases, a large retinue of railroad operating witnesses were brought to testify as to their opinions and judgment of the extra costs of conducting intrastate traffic over interstate, and it was this class of testimony that the court, in the Minnesota Rate Cases, had in mind when it held that the carriers proof should rest on an analysis of the facts rather than upon expert opinion. Such an analysis and investigation in minute detail has been made in this case.

It is upon the facts so developed that the proof rests, and not upon expert opinion as to the aggregate results of the conduct of any branch of the service. The formula itself is the evidence of the views of the men by whom it was devised and prepared, and, in introducing it appellees brought into the case the aggregate knowledge and experience of those men, whose sole purpose in its preparation was to determine what facts would develop the cost of conducting the various classes of traffic, and to devise methods whereby those facts could be ascertained. Their work was done without any knowledge as to the effect it would have in determining the application of rates on any railroad. They dealt with principles only. Tested by the formula, we submit that the proof in this case shows that the enjoined rates during a period of four years and four months, and every part thereof, are insufficient to produce any return upon the property used in the conduct of the appellees' business.

Respectfully submitted,

JOHN M. MOORE,

*Attorney for Appellees.*

W. F. EVANS,

*Of Counsel.*

## INDEX TO APPENDIX.

For convenient reference we have printed the following exhibits in the appendix, namely:


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Exhibit No. 61. Summary and Average of four years' earnings, expenses and return upon the value of the property..... 273-278

1) *

# APPENDIX

## Exhibit No. 2

### PREPARATION OF DATA USED AS FACTORS IN THE ALLOCATION OF EXPENSES, TAXES, RENTALS AND HIRE OF EQUIPMENT, TO THE STATE OF ARKANSAS, AND BETWEEN "LINE" AND "TERMINAL." FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS.

The allocation of expenses, taxes, rentals and hire of equipment to Arkansas, and their division between freight and passenger, intrastate and interstate, mail and express, were made by the use of such factors as were obtainable, and which may be properly termed USE UNITS. The application of these factors to the purposes indicated above, is set forth in the formula filed as Exhibit No. 1, and in the explanations and descriptions accompanying the exhibits, in which the expenses, etc., as allocated, are set forth.

Wherever possible, divisions have been made upon factors based upon actual data as to the operation of the railroad, secured either from the records regularly maintained by the railroad in the ordinary conduct of its business, or by special investigations and tests conducted along with the actual every-day operation of the railroad.

Wherever, as stated above, the divisions made were based upon an analysis of the records regularly kept by the railroad, such analysis has in each instance, been carried back to the original authentic source of entry in the railroad's records.

*Pages of the original exhibit.

It is proposed here to set forth the methods employed in gathering the data used in the preparation of exhibits in this case, to secure which, special investigations and tests were necessary.

In making the tests and investigations referred to, a special organization was created upon each operating division of the railroad having mileage within the State of Arkansas. These division organizations were placed in charge of a man drawn from the Division Superintendent's organization, who had had long practical railroad experience and was thoroughly familiar with the operating conditions upon the division of which he had charge. These men were carefully schooled in the requirements of the work entrusted to them. It was their duty to keep in daily touch with the conduct of the tests and investigations being made under their supervision. They were all brought together at a central point at frequent intervals, and examined concerning the conduct of the work entrusted to their charge. Interchanges of views between them were had at these meetings concerning the work in hand, and thorough instructions given them by the representative of the railroad in general charge of the work, upon all phases of it.

In addition to the divisional supervision of the work described above, the representatives of the railroad in general charge of the work, paid frequent visits to the various divisions in order to add their personal supervision to that given to the work locally by the divisional organization. Careful and explicit instructions, in most instances in print, were given to all subordinate employees engaged upon the work, to cover the phases of the work entrusted to them. All of these subordinate employees were carefully instructed as to

the proper conduct of the work entrusted to them before being sent into the field. All such subordinate employees were practical experienced railroad men, and were chosen with regard to their fitness for the particular work entrusted to them.

This statement is made here in order that it may be understood that every care was exercised to safeguard the accuracy of the data collected.

*Freight and Mixed Train Performance.*

The data of this character collected covered all trains moving wholly or partly within the State of Arkansas during the entire months of November and December, 1913.

The data as to train performance was collected upon a special form provided for that purpose, which is offered in evidence as Exhibit 2-A.

Clerks were placed upon each local freight and mixed train to prepare this report. Special clerks were placed in each yard office where through freight trains began or ended their runs. These special yard clerks prepared the report covering the train in its entirety as it left the terminal. The conductors in charge of through trains were required to enter on the report all of the required data concerning cars or contents of cars, both picked up and set out between the termini of their run. Special yard clerks placed at the arriving terminal were required to enter upon the report all of the required information covering shipments picked up by the through train after leaving the departing terminal, and which was carried into the arriving terminal.

All data entered upon the report, except the calculations as to mileage and ton mileage, was acquired either by the

clerk upon the train, the yard clerks at the terminals, or the conductor in charge of the train, as outlined above, directly from the actual way bills covering freight in the train, and other sources of information at first hand.

The numbers of engines and the numbers and initials of cars, were taken from the equipment as it was handled in the train.

The tare weights of cars were taken from the stenciling upon the cars themselves, except in instances where no such weights were stenciled upon the cars, and in these instances, the actual tare weights of the cars at their last weighing were obtained by the central office of the railroad from the owners of the cars. This refers to both, loaded and empty cars.

All information required by the report (Exhibit 2-A) to be taken from the way bills covering the freight, was so obtained.

In the case of cars not accompanied by regular way bills (such regular way bills having been mailed overhead to destination or to the end of the division), and which were moved upon card or slip way bills, which ordinarily would not yield the information requisite for this special train performance report, agents were required to show upon the face of the card way bill the actual tonnage contained within the car, classified as between intrastate, interstate and company material, having in mind in the classification between State and interstate, the movement of the freight with relation to the boundaries of the State of Arkansas. Special instructions as to showing this information upon card way bills were given in circular form to all agents on the railroad authorized to make such

card way bills. Copy of this circular is offered in evidence as Exhibit 2-B.

The train performance report form (Exhibit 2-A) carries upon its reverse side, explicit instructions as to its preparation, and detailed illustrations of the classification of tonnage as between intrastate, interstate and company material, with reference to its movement within the boundaries of the State of Arkansas, illustrations of several specific movements being contained therein.

The weights shown by train clerks, yard clerks and conductors, classified as between intrastate, interstate and company material, upon this report (Exhibit 2-A), were those appearing upon the face of the way bills at the time they were in their possession.

Upon receipts of these reports at the general offices of the railroad, they were carefully examined as to the accuracy of their preparation, a force of specially trained men being employed for this purpose.

The original weights of the contents of the cars shown upon the report by train clerks, conductors and yard clerks, were, insofar as carload freight is concerned, all checked against the railroad's regular scale station reports, and the original way-billed weights, all corrected to basis of the actual scaling.

(4) The mileage each shipment was hauled in each train was placed upon these reports (Exhibit 2-A) by expert mileage clerks at the general offices of the railroad, and in the same office the application of this mileage to the tonnage upon the report was made, translating the tonnage into ton mileage.

At this same central office, the train and equipment mileage in each separate train was computed.

A careful check was made against train dispatchers' records to see that all freight and mixed trains moving wholly or partially within the State of Arkansas, during the months of November and December, 1913, were covered by the train performance reports (Exhibit 2-A), received at the general office of the railroad.

From these reports were drawn separately for through and local freight trains, and for mixed trains, the engine miles and the gross and net ton miles, the latter being classified as between intrastate, interstate and company material, the gross and net ton miles of mixed trains being classified as between the freight equipment and its contents and passenger equipment.

*Passenger Train Performance.*

The data of this character collected, covered all trains moving wholly or partly within the State of Arkansas for the entire two months of November and December, 1913.

It was not necessary to place special representatives upon passenger trains in order to secure accurate first hand data as to their performance.

The data required was the passengers carried one mile within the State of Arkansas, classified as between revenue intrastate and revenue interstate, and non-revenue segregated according to the character of passenger vehicle in which they were transported; that is, Pullmans and other passenger-carrying cars, separately.

It was found practicable to secure the desired information accurately from the ticket and cash fare collections turned in to the auditor by conductors and train auditors, supplemented by certain special reports hereinafter described.

A special force of men was employed in the general offices of the railroad to examine, immediately upon their receipt, the ticket and cash fare collections and special reports, made by conductors and train auditors.

An examination of the tickets, cash fare receipts and trip passes *lifted* by conductors and train auditors on each train was made, and from these the passengers carried on transportation *lifted,* on each train, were classified as between revenue intrastate and revenue interstate, and non-revenue, and the distance which each passenger had traveled on each train, determined.

Special reports covering transportation honored *but not lifted,* such as tickets good for a journey beyond the end of the run of the conductor or train auditor on a given train, or annual or other card free transportation retained by the passenger, were required of all train auditors and conductors charged with the collection of transportation credentials on each train running wholly or partially within the State of Arkansas. Samples of these special reports are offered in evidence as Exhibits 2-C and 2-D.

A special envelope was provided in which conductors and train auditors were required to remit separately, for each train carrying Pullman cars, the transportation lifted by them from passengers riding in such cars. By this means it was possible to get a separate record of Pullman passengers one

mile, classified as between revenue interstate, revenue intrastate and non-revenue. A sample of this envelope is offered in evidence as Exhibit 2-E.

The special reports (Exhibits 2-C and 2-D) hereinbefore referred to covering passengers riding on transportation honored but not lifted, carried all of the information requisite to the proper classification of passenger travel, as between intrastate, interstate and non-revenue, and coach and Pullman travel, which would have been afforded by a visualization of the tickets, etc., had the same been lifted.

With this preparation, a special force of men employed in the general office of the railroad, were enabled to make the desired classification of passenger mileage upon all trains running wholly or partly within the State of Arkansas. This data was collated upon a special form prepared for that purpose which is offered in evidence as Exhibit 2-F.

The number of passengers and the extent of their journey on each individual train, the character of equipment in which they were transported and a classification of the number of passengers as between intrastate, interstate and non-revenue, Pullman and other passenger-carrying car travel separately, was entered upon this form.

Specially trained mileage clerks entered upon this form, the mileage traveled, by each passenger, and from this applied to the data derived from the ticket cash fare and pass collections and train auditors' and conductors' special reports (Exhibits 2-C, 2-D and 2-E) the passengers transported one

mile, revenue intrastate, revenue interstate and non-revenue, Pullman and other passenger-carrying car travel separately, within the State of Arkansas, were ascertained.

The force employed in the preparation of this data were specially trained men, whose experience peculiarly fitted them to accurately perform the work assigned to them, several of them having formerly been members of the railroad's regular train auditor staff.

The instructions as to the preparation of the special reports (Exhibits 2-C, 2-D and 2-E) required of train auditors and conductors, were issued in circular form. Copy of this circular is offered in evidence as Exhibit 2-G.

*Report of Train Stops and Terminal Delays.*

The data of this character collected covered all trains operated wholly or partially within the State of Arkansas during the entire months of November and December, 1913.

In complying with the provisions of the formula filed as Exhibit No. 1, it became necessary to determine what proportion of the time of trains upon the road was properly chargeable to "terminal" service and to "line" service within the meaning of the formula. To this end conductors of all freight, passenger and mixed trains, were required to render a report covering each trip on a form, sample of which is offered in evidence as Exhibit 2-H. Full instructions for the preparation of this report are carried upon the back of the form.

The report showed upon its face the time devoted to station service, and under the heading of "Terminal Delays" the time devoted to switching at the termini of the train's run.

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The aggregate of the station service time and switching time at train terminals, was considered as "terminal" service time.

The percentage relation of this terminal service time and the percentage relation of the balance of the train's time upon the road, plus the delay at the termini of the run other than for switching purposes, to the total time of the train upon the run plus all terminal delays, were determined, and on these percentages were divided between "line" and "terminal," all direct train operation expenses, namely:

Wages of enginemen and trainmen, fuel, water, lubricants and supplies for road locomotives, train supplies.

The percentage relation of "line" and "terminal" service of trains upon the time basis outlined above, was ascertained in the aggregate for all trains operating wholly or partly within the State of Arkansas, but in separate groups for through freight, local freight, mixed and passenger trains.

This recapitulation and application of the data obtained from these conductors' reports was prepared in the general offices of the railroad by a special force of men employed for that purpose.

*Switch Engine Foremen's Work Report.*

The data of this character collected covered the operation of all switch engines in all yards within the State of Arkansas for the entire months of November and December, 1913.

In order to divide yard expense between "line" and "terminal," and freight and passenger, as provided for in the formula filed as Exhibit No. 1, it became necessary to determine

the time devoted to each class of service, in all yards, within the State of Arkansas. For that purpose switch engine foremen in charge of all switch engines in such yards were required to render a special report daily covering the entire service time of the crews in their charge.

Sample of this report is offered in evidence as Exhibit 2-I. Instructions as to the preparation of this report are given upon the reverse side thereof.

Switch engine foremen were required to indicate for each half hour, the character of service in which the engines and crews under their charge were engaged during the major portion of that half hour, in accordance with the classification prescribed in the report form.

The service time as classified, on these reports was grouped in the general office of the railroad under the headings of "line" and "terminal" and "freight" and "passenger," as follows:

*Line Freight.*

Making up and breaking up trains, handling cars for icing.

*Terminal Freight.*

Handling cars (receiving a road haul) for loading and unloading at stations.

Switching cars to and from connecting lines.

Handling cars which were both loaded and unloaded within switching limits of the same yard.

*Common to Freight "Line" and "Terminal."*

Handling freight cars to and from repair tracks.

*Passenger Line.*

All passenger switching.

*Common to Freight and Passenger, "Line" and "Terminal."*

Dead time.

This "dead time" being the unemployed time of the engine crew during regular service hours, was considered as proportionately chargeable to all of the actual services performed by the engine, and was spread over them accordingly.

*Towerman's Report of Trains Passing Interlockers.*

Each employee in charge of the operation of an interlocker within the State of Arkansas was required to make report for each day during months of November and December, 1913, of all trains passing over the interlocker in his charge. These reports were rendered upon a special form provided for that purpose which is offered in evidence as Exhibit No. 2-J. Full instructions for the preparation of this report is given on its face.

Trains and engines passing over each interlocker were classified between "passenger," "freight," "mixed," "work and wreck," and "switch" service.

The switch service was classified as between freight and passenger according to the character of equipment hauled by switch engines on each individual trip over the interlocker.

These reports were all recapitulated in the general office of the railroad.

The number of work and wreck trains passing each interlocker were spread over the freight, passenger and mixed

trains using the interlocker on basis of the number of trains of each class. A division of the use of interlockers as indicated above was made direct between freight and passenger service (with the apportionment of switch and work service indicated above), the mixed train proportion of use of interlockers being divided between freight and passenger on basis of the freight and passenger gross ton miles in such trains. Having in this way determined the number of train usages of each interlocker chargeable to freight and passenger services (and all of such usage was charged to "line" service), the percentage relation of the number of usages chargeable to freight and passenger service was determined and applied to the division of the expense of maintenance and operation of each interlocker between freight and passenger "line" service.

*Tally of Trains Crossing Drawbridges and Passing Points Where Crossing Protection Was Maintained.*

Formula filed as Exhibit No. 1 provides that the maintenance and operation of drawbridges and crossing protection devices, and the cost of maintaining flagmen at crossings, shall be divided between freight and passenger on basis of the number of trains of each class passing over each drawbridge or each crossing.

In order to accomplish this an analysis of dispatchers' train sheets was made in the office of Division Superintendents, whose territory was wholly or partially within the State of Arkansas and the number of trains of each class passing over each drawbridge and crossing ascertained therefrom. The number of mixed trains passing over drawbridges and crossings was apportioned between freight and passenger service

on the basis of the gross ton miles of each class in mixed trains. After having in this way ascertained the use made of drawbridges and protected crossings by freight and passenger service, the data so obtained was used as a basis for factors on which to divide the expense of operating and maintaining these drawbridges and crossings between the two services. No portion of this expense was charged to "terminal" service, because, by reason of the location of the drawbridges and protected crossings in Arkansas, no "terminal" service use was made thereof.

*Special Report of Station Agents, Used as a Basis for Division of Station Expenses.*

In complying with the provisions of the formula, filed as Exhibit No. 1, agents at all stations within the State of Arkansas were required to render a special report of station expense and performance for the months of November and December, 1913. Sample of this report form is offered in evidence as Exhibit No. 2-K. Instructions for the preparation of this report are given on the reverse side thereof.

Special representative was sent out to confer with all agents in the State of Arkansas and to supervise their preparation of these reports to the end that all such reports might be correctly prepared, and upon a uniform basis.

For the purpose of preparing this special report, the agent at each station was required to make a study of the time devoted by himself and the employees under his charge to freight, passenger, mail, express and telegraph service. On basis of this time study, each agent was required to apportion

to the various classes of service, the actual wages paid at his station.

He was also required to prepare a record of the number of tons of freight received at, forwarded from and transferred from car to car at his station, classified as between intrastate and interstate and company material, less than carload and carload separately. He was also required to tabulate the number of cars received at and forwarded from his station loaded with carload freight, the number of cars received and forwarded loaded with less than carload freight, and the gross weight (cars and contents) of all such cars, all classified as between intrastate, interstate and company material. He was also required to show (although the report does not call for this) the number of consignments of intrastate, interstate and company material freight received at and forwarded from his station.

The cost of supplies and other expenses of each separate station were determined from original records in the offices of the Division Superintendents, and there entered on the report rendered by each agent, being divided between freight, passenger, mail, express and telegraph services in proportion to the division of wages made by the agent on basis of his time study. This division, of the cost of supplies and expenses, is provided for in the formula filed as Exhibit No. 1.

The division of wages and station supplies and expenses described above, and made at each individual station within the State of Arkansas, was recapitulated, and such tabulation furnished the division of these expenses between the various classes of service for the State as a whole.

The data as to tonnage and cars handled, prepared by the agent as hereinbefore described, was used as the basis for factors on which to divide various items of "terminal" expense as provided for in the formula, filed as Exhibit No. 1.

*Special Reports of Labor and Material Charges Required of Section Foremen.*

In order to comply with the provisions of the formula, filed as Exhibit No. 1, and the modifications thereof adopted by the St. Louis and San Francisco Railroad as set forth on pages 4 and 4-A of the formula, all section foremen having charge of tracks within the State of Arkansas were required to keep a special record of labor expended and material used upon the section of the railroad under their charge for the entire months of November and December, 1913. Special representative was sent out on each division of the railroad to confer with each section foreman and to classify all of the tracks under his charge in accordance with the formula, filed as Exhibit No. 1, and to so arrange his time and material books that the charges for labor and material on each separate track or class of tracks entered in these books each day were classified as between "line," "terminal," "freight," "passenger" and "common," as provided for in the formula. From a recapitulation of these time and material books made in the general office of the railroad, the data of this nature as to maintenance of way and structures expenses required for compliance with the provisions of the formula was secured.

EXHIBIT No. 3.

DESCRIPTION OF ANALYSES MADE OF THE COMPANY'S RECORDS, REGULARLY MAINTAINED IN THE ORDINARY CONDUCT OF ITS BUSINESS, TO OBTAIN DATA TO BE USED AS FACTORS IN THE ALLOCATION OF EXPENSES, TAXES, RENTALS, AND HIRE OF EQUIPMENT TO THE STATE OF ARKANSAS, AND BETWEEN LINE AND TERMINAL, FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, AND MAIL AND EXPRESS.

The allocation of expenses, taxes, rentals and hire of equipment to Arkansas and their division between freight and passenger, intrastate and interstate, mail and express, were made by using all such factors as were obtainable, and which may be properly termed "USE UNITS."

The application of these factors to the purposes indicated above, is set forth in the formula, filed as Exhibit No. 1, and in the explanations and descriptions accompanying the exhibits in which the expenses, etc., as allocated, are set forth.

Wherever possible, divisions have been made upon factors based upon actual data as to the operation of the railroad, secured either from the records regularly maintained by the railroad in the ordinary conduct of its business, or by special investigations and tests conducted along with the regular every-day operation of the railroad.

*Pages of the original exhibit.

A full description of these special investigations and tests and the methods employed therein, has been set forth in Exhibit No. 2, and Exhibits 2-A, 2-B, 2-C, 2-D, 2-E, 2-F, 2-G, 2-H, 2-I, 2-J and 2-K.

It is purposed here to set forth the methods employed in securing data from the ordinary records of the company upon which to base factors for use in complying with the formula filed as Exhibit No. 1.

The analyses of the company's ordinary records made for the purpose above stated, have in each instance been made from original authentic sources of entry in such records, by a special force of experienced men employed for that purpose.

*Location of Expenses, Taxes, Rentals, and Hire of Equipment, to the State of Arkansas.*

For this purpose an analysis was made of accounting and related records kept in the offices of the Division Superintendents, and the General Auditor. All original bills, vouchers and other original sources of record were examined in detail and such charges and credits as located themselves entirely to the State of Arkansas were so charged or credited. All charges and credits assignable partially to Arkansas and partially to other States were anaylzed and a proportion thereof assigned to Arkansas upon the bases provided in the formula filed as Exhibit No. 1, and the modifications thereof adopted by the St. Louis & San Francisco Railroad, also set forth in said exhibit. This assignment of expenses, taxes, rentals and hire of equipment to the State of Arkansas as outlined above, was made for the entire year ended June 30, 1913, and also for the months of November and December, 1913.

*Allocation of Expenses Assigned to Arkansas Between Line and Terminal, Freight and Passenger, Intrastate and Interstate and Mail and Express.*

These allocations were made in accordance with the provisions of the formula filed as Exhibit No. 1, and the modifications thereof adopted by the St. Louis & San Francisco Railroad, as set forth in said exhibit. In some instances, such allocations were made direct from original sources of entry (vouchers, bills and kindred sources), in others, the railroad's regular accounts kept in accordance with the requirements of the Interstate Commerce Commission, themselves afforded the means of making these allocations direct, and in other instances the factors obtained through special tests and investigations (as described in Exhibits 2 and 2-A to 2-K, inclusive), were employed in making these allocations, and in still other instances, factors derived from the railroad's records regularly kept in the ordinary conduct of its business were employed.

A description of the method of preparing the factors derived from the railroad's ordinary records is given hereinafter.

*Freight Car Miles, Passenger Car Miles, Work Car Miles, and All Classes of Train Miles.*

Wherever train or equipment mileage figures (as described above), for a period other than for the months of November and December, 1913; (the similar data for those two months being secured as outlined in Exhibit No. 2), were used as factors, the mileage figures so used were those regularly compiled by the railroad in the office of its car accountant.

These mileage figures are derived by the car accountant from original reports made by officers and employees in direct charge of the operation of trains, engines and cars. Wherever such reports cover movements entirely within the State of Arkansas, all such movements were charged to that State. Wherever such reports covered movements of train or other units across the boundaries of the State of Arkansas, an analysis of each individual report was made, and an actual assignment of train, engine or car mileage to the State of Arkansas made therefrom.

*Net Tons and Net Ton Miles and Passenger and Passenger Miles.*

Wherever net ton, net ton mile, passenger, or passenger mile figures for a period other than the months of November and December, 1913 (the similar data for those two months being secured as outlined in Exhibit No. 2), were used as factors, the tonnage, ton mileage, passenger and passenger mileage figures so used were those regularly compiled by the freight and passenger auditors of the railroad for its own usual purposes, and were recorded in the regular statistical records of the railroad.

The railroad, for purposes of reports required by the State regulating bodies, keeps in its records from month to month, an actual assignment of net tons and passengers handled, and net ton miles and passenger miles hauled, prepared from orignal sources, and assigned upon bases of actual allocation to the various States. Wherever figures of this character located to the State of Arkansas have been used in complying with the formula filed as Exhibit No. 1, they have been

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such figures compiled currently each month by the railroad as set forth above.

*Car-Foot Miles.*

In complying with the provisions of the formula filed as Exhibit No. 1, it became necessary to determine the amount of space used in passenger trains within the State of Arkansas during the months of November and December, 1913, for the transportation of passengers in Pullman cars and in other passenger-carrying cars, separately, and for passenger auxiliary service in baggage, dining, and cafe-observation cars, and for mail and express service. From the passenger train wheel reports regularly rendered by conductors in charge of such trains, the mileage of each car moving in trains within the State of Arkansas during the period indicated above, was ascertained. This mileage of each individual car was multiplied by the actual inside length of the car in feet and inches, determined from the railroad's equipment records, and in the case of Pullman cars, from the Pullman Company's records, the product of such multiplication being expressed in car-foot miles.

The car-foot miles of each individual car were assigned according to the class of service (as outlined above), in which it was used upon each individual trip. In the case of cars employed in two or more services, the division between these various services (individual trips being considered separately) was made according to the number of services in which the car was employed on each individual trip. As illustrations: A baggage car assigned for the transportation of both baggage and express was counted one-half baggage and one-half ex-

press. A baggage car assigned for the transportation of baggage, express and pouch mail was counted one-third each to baggage, mail and express. Combination cars assigned for the transportation of baggage, mail and passengers were counted one-third each to baggage, mail and passenger carrying services. These illustrations will serve to indicate the basis followed, the same principle being followed where a car was assigned to other combinations of services on a single trip.

The car-foot mileage of passenger train equipment in mixed trains was divided between the various classes of service upon the same basis as outlined for equipment in straight passenger trains.

*Engine Ton Miles.* (4)

In the division between freight and passenger, of some portions of maintenance of way expense charged to line service, the engine ton mile unit was used.

The engine ton mile unit referred to may be defined as follows: It is the total weight of the engine and its tender plus the average lading of the tender with fuel and water, multiplied by the number of miles run by the engine. In preparing this unit for use in the division of expenses indicated above, for the months of November and December, 1913, the mileage of individual engines was secured, in freight service from the train performance report of which sample is filed as Exhibit No. 2-A, and in passenger service from the regular passenger train wheel reports of the railroad. This refers solely to the mileage made by engines within the State of Arkansas. In translating these engine mileages into engine ton miles, the actual weight of each engine and tender was ascertained from

the company's equipment records, and there was added thereto 66 2-3 per cent of the loading capacity of the engine tender for coal and water, reduced to a tonnage basis, 66 2-3 per cent being the approximate average load of fuel and water carried at all times on an engine's tender when in actual service. The total weights of engines and their loaded tenders so obtained were multiplied separately for each individual locomotive in each class of service, by the mileage of such engines, the product being the freight, passenger and mixed engine ton miles.

The mixed train proportion of maintenance of way expenses ascertained on the engine ton mile basis as outlined above, was subdivided between freight and passenger upon basis of the gross ton miles of freight and passenger equipment and contents in such trains, these freight and passenger gross ton miles in mixed trains having been determined on the basis set forth in Exhibit No. 2.

*Wages and Fuel—Local and Through Freight Trains and Mixed Trains.*

Wages paid local freight train and engine crews, and through freight train and engine crews, separately, were determined from the original time slips and other time-keeping records of the company, and represent, as set forth in subsequent exhibits, an actual allocation to the two classes of trains.

The charges for fuel consumed by local and through freight train engines, separately, were determined as a matter of actual allocation from the company's regular fuel performance records which afford information as to the actual consumption of fuel by each locomotive on each trip.

Same direct allocation of wage and fuel costs as is described above, was made for mixed trains, and the mixed train charges of this character divided between freight and passenger on the basis provided in the formula, the freight proportion of such charges being added to similar charges for local freight trains.

## EXHIBIT No. 4.

## METHOD OF APPORTIONMENT OF REVENUE TO ARKANSAS AND TO FREIGHT AND PASSENGER INTRASTATE, INTERSTATE, AND MAIL AND EXPRESS TRAFFIC.

*Freight Revenue.*

INTRASTATE FREIGHT REVENUE earned in Arkansas as set forth in Exhibit No. 22, was taken from the records compiled by the railroad in the ordinary keeping of its accounts, with this exception, that while the railroad in preparing the intrastate revenue figures formerly reported to the State Railroad Commission had made an arbitrary adjustment of its gross intrastate revenue in Arkansas on account of undercharge collections, overcharge payments, switching absorptions and kindred items, in preparing the figures shown as intrastate freight revenue in Exhibit No. 22 filed in this case, covering the year ended June 30, 1913, all such adjustments were analyzed and actually applied against the gross earnings covering the actual road haul to which they attached. The arbitrary adjustments, formerly made by the railroad, of overcharges, switching absorptions, undercharges and kindred items, were upon basis of a road mileage prorate (between States) for the railroad as a whole, and a subsequent division of such assignments to States between intrastate and interstate on the basis of the gross intrastate and interstate,

*Pages of the original exhibit.

directly located, revenues within each State. In the year ended June 30, 1913, the application of this former method, assigned to the State of Arkansas (as shown in the company's regular report to the State Railroad Commission), intrastate freight revenue amounting to $256,195.32. The reworking of the intrastate freight revenues for the year ended June 30, 1913, on basis of the actual allocation provided for in the formula (Exhibit No. 1) and as hereinbefore explained in detail, resulted in an assignment to Arkansas for the year ended June 30, 1913, of intrastate freight revenue amounting to $259,241.05. The variation in the net result of the two methods of assignment being but a trifle over one per cent.

It was felt that this showing justified the railroad in using, in the preparation, Exhibits Nos. 24, 25, 26, 27, filed in this case, and covering the years ended June 30, 1910, 1911 and 1912, and the four months ended December 31, 1907, the figures representing intrastate freight revenue worked up on its usual basis and reported to the State Railroad Commission without the expenditure of the great amount of time and labor necessary to rework these figures on basis of the formula. In any event, it must be conceded that the change in the revenue figures originally reported to the State Railroad Commission, which would have been brought about by the actual allocation of adjustment items previously referred to, was so small that it would have had no appreciable effect upon the ultimate showing as to the return earned upon the value of the property, in the years prior to that ended June 30, 1913.

The apportionment of INTERSTATE FREIGHT REVENUE assigned to Arkansas for each of the periods shown in

Exhibits Nos. 22, 24, 25, 26, 27, was made in the following manner:

For the year ended June 30, 1913, the gross freight revenue accruing to the St. Louis & San Francisco Railroad for the haul of traffic between each station in Arkansas and each station on its line in other States, was tabulated separately, as was also the gross freight revenue accruing to the railroad for its entire haul, between each pair of stations on its line, of traffic which passed entirely through Arkansas *en route*, these tabulations being made from the original revenue records of the railroad. An actual analysis was made of all adjustments of freight revenue, such as overcharges, switching absorptions, undercharges and kindred items, and the results of this analysis, located by separate road hauls between each pair of stations, were deducted from or added to the gross revenues previously set up between each pair of stations as described above, the result being a properly adjusted revenue between each pair of stations for each interstate and transstate separate haul of traffic passing into, out of or through Arkansas. Having so tabulated and adjusted the earnings between each pair of stations, assignment to Arkansas of the total interstate revenue for each separate haul, was made upon the following basis:

Proceeding on the assumption, as indicated by the principle laid down in the formula filed as Exhibit No. 1, that it costs the same per ton for a given terminal or station handling of a ton of intrastate freight that it does for such handling of a ton of interstate freight, and, further, that it costs the same for the haulage of a ton mile of intrastate freight that it does

for a ton mile of interstate freight, and the further assumption, as indicated by the formula, that an allowance of revenue should be made to the States furnishing terminal service to compensate for the cost of such service, and having, in a division of operating expenses, as described in other exhibits filed in the case, determined the cost per ton for terminal service in Arkansas, and the cost per ton mile for line, or haulage, service, in Arkansas, of all freight traffic, and the relation of the terminal cost per ton to the line or haulage cost per ton mile, the terminal cost per ton was reduced to the basis of a cost per ton mile. That is to say, an apportionment of operating expenses based on the test conducted in the months of November and December, 1913, developed that it cost 36.486 cents per ton for terminal service, and .465 cents per ton mile for haulage service in Arkansas during that period. So that the cost of handling one ton in terminal service was equivalent to the cost of hauling a ton 78 miles. Thus, in order to make the revenue allowance described above, to compensate for terminal costs, there was added to the actual road mileage, of each separate interstate haul in Arkansas, 78 miles, and to the mileage proportion of such haul in other States, 78 miles, and these equated mileages were used as factors to divide the adjusted earnings tabulated between each pair of stations, as described above.

This process assumes that the average terminal cost, per ton handled, in Arkansas, is closely reflective of the average cost per ton for similar service in the other states in which the St. Louis & San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per

ton mile in the other States in which the St. Louis & San Francisco Railroad operates.

It is not considered that these assumptions are violent, for the reason that operating and traffic density conditions in Arkansas are thoroughly typical of such conditions upon the railroad as a whole.

The earnings derived from TRANS-STATE FREIGHT hauled entirely through Arkansas by the St. Louis & San Francisco Railroad were divided between that State and other States in which the St. Louis & San Francisco Railroad enjoyed a haul, on an equated mileage basis, similar to that employed in the assignment of interstate freight revenue to Arkansas, with this exception, that the mileage equivalent allowance for terminal cost was added to the actual mileage haul in the States in which the St. Louis & San Francisco Railroad's haul began and terminated, and no such allowance was added to the Arkansas mileage for the reason that such trans-state freight had no terminal handling in Arkansas, as such handling is construed in the formula filed as Exhibit No. 1, which defines "Terminal Handling" as the expense of *originating and delivering* freight.

In assigning to Arkansas its proportion of earnings on freight which, by reason of its original point of shipment and ultimate destination was classified as trans-state but which was delivered to or received from a connecting line at a junction within the State of Arkansas, one terminal equivalent allowance, as previously described, was added to the mileage made by such freight on the St. Louis & San Francisco Railroad in Arkansas to compensate for the "terminal" service

rendered on such freight at the point where interchanged with the connecting line.

The foregoing under the heading of Interstate and Trans-state Freight describes the assignment of earnings of that character to the State of Arkansas made in the year ended June 30, 1913. Ordinarily, in the past the railroad had made an assignment of interstate and trans-state freight revenue to individual States upon a straight mileage prorate basis.

Comparison of the interstate (including trans-state) revenues shown in the railroad's report to the State Railroad Commission of Arkansas for the year ended June 30, 1913, with the results obtained on the equated mileage basis hereinbefore described, shows that upon the straight mileage prorate basis the railroad had assigned to Arkansas interstate and trans-state revenue which, in the aggregate, was 99.18 per cent of the amount that would have been assigned if the equated mileage basis had been employed. It is believed that the application of the equated mileage basis, in detail, to the revenues of the year ended June 30, 1913, and the comparison of the results thereof with the results of the straight mileage prorate formerly used by the railroad, accurately indicates that relation of the results, which would have been obtained by the detailed application of the equated mileage basis in prior years, to the results which were obtained on a straight mileage prorate basis and reported to the commission in those years. For this reason the Arkansas interstate and trans-state freight earnings reported to the State Railroad Commission in prior years have been adjusted on basis of the relationship of the results of the application of the new formula, to the results obtained under the railroad's former method, in

(4) the year ended June 30, 1913, and the figures representing interstate (including trans-state) freight revenue in Exhibits Nos. 24, 25, 26, 27, have been arrived at on that basis.

*Passenger Revenue.*

Intrastate and interstate (the latter including trans-state) passenger revenues, set up in Exhibits Nos. 22, 24, 25, 26, 27, covering the years ended June 30, 1913, 1912, 1911 and 1910, and the four months ended December 31, 1907, were assigned to Arkansas on the same basis as hereinbefore described for the assignment of freight revenues, with the exception that the adjustments of overcharges, undercharges, etc., were so small in amount (being about one-tenth of one per cent of total gross passenger revenue assignable to Arkansas in the year ended June 30, 1913), that their analysis in detail was considered immaterial, and adjustment was made in a lump sum against the ascertained interstate revenue assignable to that State. In figuring the terminal revenue allowance to compensate for terminal cost, for purposes of the assignment to Arkansas, of interstate and trans-state revenue in the year ended June 30, 1913, the passenger handled cost, and passenger one mile cost were used in the same manner as the ton handled cost and ton one mile cost in assigning freight revenue; that is to say, an apportionment of operating expenses based on the test conducted in the months of November and December, 1913, developed that it costs 8.677 cents per passenger for terminal service, and 1.242 cents per passenger mile for passenger haulage service, in Arkansas during that period, so that the cost of handling one passenger in terminal service was equivalent to the cost of hauling a passenger seven miles. So in order to make a revenue allowance to com-

pensate for terminal cost, there was added to the actual road mileage of each separate interstate passenger haul in Arkansas, seven miles, and to the mileage proportion of such haul in other States, seven miles, and these equated mileages were used as factors to divide the adjusted earnings tabulated between each pair of stations as is described in the prorate of freight revenue on the preceding pages of this exhibit. The plan followed in assigning trans-state passenger revenues to the State of Arkansas was exactly in line with that followed in assigning the trans-state freight revenue to Arkansas, with the single difference that the mileage equivalent allowance for terminal cost added to the mileage of other States (no such addition being made to Arkansas mileage of trans-state hauls) was seven miles, instead of 78 miles as in the case of freight service.

NOTE: In the assignment hereinafter described of all other revenue accounts, namely:

Excess Baggage,
Mail,
Express,
Other Passenger Train Revenue,
Switch Revenue,
Special Service Train Revenue,
Miscellaneous Transportation Revenue,
Station and Train Privileges,
Parcel Room Receipts,
Storage Freight,
Storage Baggage,
Car Service, and
Miscellaneous Nontransportation Revenue (Interstate Commerce Account No. 19).

The revenues assigned to Arkansas for periods prior to the year ended June 30, 1913, were adjusted on basis of the percentage relationship of the assignment made for the year ended June 30, 1913, under the formula, filed as Exhibit No. 1, to the assignment of such revenues made under the railroad's former method applied in making reports to the State Railroad Commission, with the exception that wherever an actual allocation had been made in the figures reported in prior years to the State Railroad Commission, no such adjustment was necessary, nor was any made, for the reason that the formula filed as Exhibit No. 1 prescribed such actual allocation wherever possible, and such allocations were made of the revenues earned in the year ended June 30, 1913. In some instances the railroad's bases of assignment used in preparing reports to the State Railroad Commission in prior years, were in agreement with that prescribed in the formula, filed as Exhibit No. 1, and no adjustment of the figures reported for these revenues in prior years was necessary, the original figures so reported to the State Railroad Commission being set up in Exhibits Nos. 24, 25, 26, 27.

The allocations of the various classes of revenues described hereinafter, following this note, all refer to the revenues for the entire year ended June 30, 1913.

*Excess Baggage Revenue.*

INTRASTATE earnings of this character were assigned to Arkansas direct and INTERSTATE earnings of this character were prorated between interested States, and the Arkansas proportion assigned on a straight mileage basis, the actual haul of each movement of excess baggage governing

the classification between State and Interstate and prorate between States.

*Parlor and Chair Car Revenue.*

The St. Louis & San Francisco Railroad has no earnings of this character.

*Mail Revenue.*

The earnings from all mail routes located entirely within the State of Arkansas were assigned to that State. The earnings from routes running partly in Arkansas and partly in other States were assigned to Arkansas upon a road mileage prorate of each individual route. No segregation of these earnings was attempted between intrastate and interstate traffic.

*Express Revenue.*

The express company operating over the St. Louis & San Francisco Railroad had not made any actual assignment of revenues by States for individual railroads, it being its practice to report its total earnings within a given State to the State Railroad Commission or other regulating body in a lump sum, without distinction as to earnings made by it upon lines of individual carriers. Lacking information of this character, the express revenue assigned to Arkansas in Exhibits Nos. 22, 24, 25, 26, 27 has been determined on the following basis:

The contract of the St. Louis & San Francisco Railroad with the Express Company now and previously operating over its line, has carried a guarantee of a minimum payment to the railroad per mile of road operated over by the Express Company. These guarantees vary with individual express

routes and are assumed to be relatively indicative of the earnings accruing to the railroad on the various express routes.

These guarantees were applied to the mileage of each route on the entire St. Louis & San Francisco Railroad, and the guarantee earnings for each State determined upon a mileage basis of individual routes wholly or partially within such States. The resultant guarantee earning figures were totaled for the entire railroad and the percentage relation of such guarantee earnings for Arkansas to the total determined. The Arkansas percentage thus obtained was applied to the total actual express earnings of the St. Louis & San Francisco Railroad, and the amounts so obtained set up in Exhibits Nos. 22, 24, 25, 26, 27, as the express earnings of the railroad in the State of Arkansas.

*Milk Revenue on Passenger Trains.*

The St. Louis & San Francisco Railroad has no earnings of this character.

*Other Passenger Train Revenue.*

Earnings of this character consist principally of revenue derived from the hauling of special cars in passenger trains. Earnings of this character, when earned entirely within the State of Arkansas, were all credited to that State. When earned partially in Arkansas and partially in other States, assignment was made to Arkansas upon basis of the road mileage of the haul governing individual items of earnings. The assignment between intrastate and interstate was made upon the basis of the location of the service, each separate item of earnings being analyzed.

*Switch Revenue.*

All switch revenue earned in Arkansas was credited to that State. The classification of these earnings in Arkansas between intrastate and interstate was made on the basis of road haul to which the switch service attached itself. In analyzing switch revenue collected for other carriers on account of traffic on which the St. Louis & San Francisco Railroad secured no road haul, the records of other carriers were examined, and classification of such earnings between intrastate and interstate was made upon basis of the road haul of the carrier for which the switching was performed. Each individual item of switch earnings was analyzed and classified as above. Debits to this account in the nature of switching paid other companies were classified as between State and interstate in the same manner as is indicated above for switching earned.

*Special Service Train Revenue.*

Earnings of this character consist of the revenue derived from running chartered trains. Each item of earnings of this character was analyzed, and such as were earned entirely within the State of Arkansas were assigned in total to that State. Of such items as were earned partially in Arkansas and partially in other States there was assigned to Arkansas a straight mileage prorate, each individual item being treated separately. Division of these earnings between freight and passenger, and between intrastate and interstate was made upon the basis of actual allocation.

*Miscellaneous Transportation Revenue.*

Each item of these earnings was analyzed separately. Such items as were earned entirely within the State of Ark-

ansas were credited in total to that State. Of such items as were earned partially in Arkansas and partially in other States, there was assigned to Arkansas a straight mileage prorate. The classification between freight and passenger intrastate and interstate, was made upon the basis of actual allocation. Where items attached themselves to a road haul, the classification between intrastate and interstate freight and passenger was made upon basis of the road haul to which the item attached.

*Station and Train Privileges.*

STATION PRIVILEGES: Earnings of this character consist principally of revenues from weighing, vending and other automatic machines located at stations, advertising at stations, news privileges at stations and kindred items. Each item of earnings of this character was analyzed separately. All earnings accruing within the State of Arkansas were credited to that State. All of these earnings are properly creditable to the passenger account. The division between intrastate and interstate being impracticable as a matter of actual allocation, it was made on the basis of revenue passenger miles of each class within the State of Arkansas.

TRAIN PRIVILEGES: Earnings of this character are derived from the granting of privileges for the sale of newspapers, fruits, etc., on trains. The payment received by the railroad is based upon a percentage of the receipts of the News Company from such sales. It was, therefore, thought that the volume of travel, intrastate and interstate, was a fair basis of division of this revenue as between intrastate and interstate. Earnings of this character for the entire line

were divided between States upon a revenue passenger train mile basis, Arkansas being credited with that proportion of the total earnings which the passenger revenue train miles in that State bore to the total passenger revenue train miles of the entire railroad. It being impracticable to assign this expense actually to intrastate or interstate, such assignment was made upon the basis of revenue passenger miles of each class within the State of Arkansas.

*Parcel Room Receipts.*

Each item of this character of earnings was analyzed separately, and assignment was made to Arkansas of all earnings actually accruing in that State. Division of earnings of this character, assignable to Arkansas, between intrastate and interstate, was made upon the basis of intrastate and interstate passengers using stations within that State.

In making this division, the number of trans-state passengers was excluded from consideration, for the reason that as a usual thing no parcel room earnings are derived, on the St. Louis & San Francisco Railroad, from trans-state passengers.

*Storage Freight.*

All credits to this account were analyzed, each individual item separately. Assignment was made to Arkansas of all such credits covering earnings accruing within that State. Division of these earnings between intrastate and interstate was made upon the basis of the actual road haul of the shipment upon which storage was collected. Some adjustments in the nature of refunds and some collections not definitely locatable to States and as between intrastate and interstate traffic, were assigned to Arkansas, and to intrastate and inter-

state on the basis of assignment of the locatable credits, as described above.

*Storage Baggage.*

Each item of earnings of this character was analyzed and such earnings as actually accrued within the State of Arkansas were assigned to that State. An actual division of earnings of this character between intrastate and interstate being impracticable from the railroad's records, such division was made upon the basis of passengers using stations, as described under the head of Parcel Room Receipts.

*Car Service.*

The same basis of location of earnings to Arkansas and division between intrastate and interstate, that was employed in assigning earnings from "Storage Freight," was employed in the assignment of car service earnings. Revenues of this character were all credited to freight.

*Rental of Buildings and Other Property.*

Income of this character was considered as being a proper deduction from rentals of similar character paid, which have been treated in Exhibits Nos. 22, 24, 25, 26, 27, as income charges.

The explanation of the allocation of net rentals to the State of Arkansas and their assignment to the various classes of traffic, is detailed in Exhibit No. 5.

*Telegraph and Telephone Service.*

The St. Louis & San Francisco Railroad has no earnings of this character.

*Miscellaneous (Nontransportation) Earnings.*

The designation of this account not being sufficiently descriptive, it should be stated that the earnings credited thereto consist, in the main, of revenues derived from the following sources:

Detouring trains of other lines.

Water furnished locomotives of other lines, on their detoured trains.

Use of wyes, turntables, etc., by other lines.

Commission on meal tickets.

Fees in garnishment suits.

Commissions on premiums collected on indemnity bonds of employees.

Commission on collections of casualty insurance premiums.

Profit on rails and ties sold.

Parking charges on passenger cars of private, or other line, ownership.

Bridge tolls of foot passengers and wagons.

Charges for feeding live stock in transit.

These earnings when accruing entirely within the State of Arkansas were all assigned to that State. Where earned partially in Arkansas and partially in other States, Arkansas was assigned its proper relative mileage proportion. Actual allocation was made between intrastate and interstate wherever possible. As an illustration: In the case of earnings derived from detouring foreign line trains (one of the largest items in the account), if the detour was made entirely within Arkansas, the revenue was considered as intrastate. If the

detour was made partially in Arkansas, and partially in another State, the earnings derived therefrom were considered as interstate.

Such items as could not be definitely located to Arkansas or between freight and passenger, intrastate and interstate, were divided under these heads, on the same basis as the location of the operating expenses in I. C. C. Accounts Nos. 106 to 116, inclusive, "General Expenses," as described in a subsequent exhibit. The theory on which this latter division was made was that these earnings, with the exception of detouring, which permits of direct allocation, were of such a character that the expense of securing them was practically all included within the "General Expenses" of the railroad.

*Joint Facilities Revenue—Dr.*

*Joint Facilities Revenue—Cr.*

The revenue accrued in the credit side of these accounts consisting entirely of amounts received from other carriers, as the St. Louis & San Francisco Railroad's proportion of rentals collected for the use of portions of depots and concessions in depots, in which the St. Louis & San Francisco Railroad is the tenant of another line, and the entries on the debit side of these accounts representing proportions of rental of a similar character paid to other lines by the St. Louis & San Francisco Railroad, where it is the landlord line, have been treated as a proper deduction from rentals paid under the head of "Income Charges," detail of the assignment of which is set forth in a subsequent exhibit.

## EXHIBIT No. 5.

## METHOD OF ASSIGNMENT TO ARKANSAS AND APPORTIONMENT BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC, OF TAXES, RENTALS AND HIRE OF EQUIPMENT.

*Taxes.*

Taxes accrued upon the books of the railroad during each of the periods covered by Exhibits Nos. 22, 24, 25, 26, 27, have been set up therein. The basis of assessment in Arkansas is on value of the physical property, consideration, however, being given to its earning capacity and other items affecting its value as a going concern. The value determined, however, is placed upon the physical property and the tax levy made upon that basis. The apportionment of State tax, therefore, in Exhibits Nos. 22, 24, 25, 26, 27, between freight and passenger, intrastate, interstate, mail and express, has followed the division of the valuation of the property made as prescribed in the formula filed as Exhibit No. 1, and as set forth in Exhibit No. 18.

Federal taxes have been assigned to Arkansas and prorated between the various classes of traffic on the basis provided for in the formula, filed as Exhibit No. 1.

*Pages of the original exhibit.

*Rentals.*

All rentals earned and rentals incurred, as properly accrued and shown on the railroad's books, for the periods covered by Exhibits Nos. 22, 24, 25, 26, 27, have been set up in such exhibits in one lump sum as a net credit for each period (the rental earned in each period having exceeded the rental charges incurred). The rentals earned by the railroad and treated as set forth herein, consist of items of the following character:

Rental of joint tracks, depots and Memphis and Van Buren bridges. (Interstate Commerce Account "Joint Facilities Rent Income.")

Rentals of buildings and other property. (Interstate Commerce Revenue Account No. 18.)

Proportion accruing to the St. Louis & San Francisco Railroad, of space rental for sundry concessions in joint stations. (Interstate Commerce Revenue Account No. 21.)

The rentals incurred by the railroad, and treated as set forth herein, consist of items of the following character:

Rentals of miscellaneous joint tracks and depots. (Interstate Commerce Account "Joint Facility Rent—Deductions.")

Rental paid for the use of the Kansas City, Fort Scott & Memphis Railway.

All rentals earned or incurred wholly within the State of Arkansas have been credited or charged entirely to that State.

Of rentals earned from, and incurred on account of, tracks and other facilities lying partially in Arkansas and

partially in other States, there has been assigned to Arkansas its road mileage proportion, based upon the mileage of each individual track or facility. The apportionment of the debits or credits for rental assigned to the State of Arkansas, as hereinbefore described, was made between freight and passenger, and mail and express on basis of actual use of the rented property or facility wherever possible, and where actual use location was not practicable, such assignment was made on basis of the assignment of operating charges and credits in Interstate Commerce Accounts Nos. 22, 23, 51, 52, 77, 78, 104, 105, 115 and 116, these being the joint facility operating debit and credit accounts covering the operating expenses of tracks, facilities, etc., the rentals earned from, or incurred on account of the use of which, were apportioned to Arkansas, as outlined above. These joint facility expense account charges and credits are based upon the use made of each facility by the various classes of service, and reflect such use. Division of these net rentals between intrastate and interstate was made in the case of the freight proportion on basis of respective ton miles of each class, and in the case of the passenger proportion on basis of the respective passenger miles of each class.

One exception to such basis of apportionment of rentals between freight and passenger, intrastate and interstate, and mail and express, was made in the case of rentals earned from the use, by other carriers, of the Memphis bridge. These rentals were divided between freight and passenger on basis of the freight and passenger train mileage made by St. Louis & San Francisco Railroad trains over the bridge and its auxiliary facilities in the State of Arkansas, and the freight and passenger proportions of this rental credit so determined

were assigned to interstate traffic. A car-foot mile proportion of the passenger assignment of this credit was allotted to mail and express, based upon the car-foot mileage space, devoted to mail and express in trains passing over the Memphis bridge and its facilities in Arkansas.

Another exception was made in the division of the rentals paid for the use of the Kansas City, Fort Scott & Memphis Railway (Arkansas proportion assigned upon a road mileage basis). The portion of this rental assigned to Arkansas was divided between freight and passenger on basis of the revenue train miles in each class of services made on the tracks of the Kansas City, Fort Scott & Memphis Railway in Arkansas. The mixed train mileage over the Kansas City, Fort Scott & Memphis Railway in Arkansas was assigned between freight and passenger on basis of the respective freight and passenger gross ton miles in such trains. The freight proportion of this rental was assigned to intrastate and interstate on basis of the respective ton miles of each class hauled over the Kansas City, Fort Scott & Memphis Railway within the State of Arkansas. Of the passenger proportion of this rental charge, a proportion was first assigned to mail and express on basis of the car foot miles chargeable to mail and express on the Kansas City, Fort Scott & Memphis Railway in Arkansas. The remainder of the passenger proportion of this rental charge was subdivided between intrastate and interstate traffic on basis of the respective passenger miles of each class made upon the Kansas City, Fort Scott & Memphis Railway in Arkansas.

The train mile, car foot mile, ton mile and passenger mile figures, wherever used in dividing both the Memphis bridge

rental credit and Kansas City, Fort Scott & Memphis Railway rental charge, were those obtained by special tests made during the months of November and December, 1913.

Rentals of buildings and other property (Interstate Commerce Revenue Account No. 18) have been divided between freight and passenger, intrastate and interstate, mail and express, as provided for in the printed formula (page 7).

*Hire of Equipment.*

An analysis of the charges and credits to Hire of Equipment was made from the original vouchers issued in payment of hire of equipment charged and bills rendered for the collection of hire of equipment credits. A complete analysis was made of all records of the railroad underlying these bills and vouchers in order to make the proper segregation of charges and credits between locomotives, passenger train cars, freight cars, Pullman cars and work equipment. Having determined the net hire of equipment debit or credit for each class of equipment as set forth above, for the entire railroad, an assignment of a portion thereof was made to Arkansas upon basis of the mileage made by the respective classes of equipment in that State as compared to the mileage of each class of equipment upon the railroad as a whole. The net hire of equipment charge or credit for freight cars on the one hand, and for passenger and Pullman cars on the other, automatically assign themselves to the freight and passenger service. The net charge or credit of this nature covering locomotives was divided between freight and passenger, work and switch service, on basis of the actual mileage made in Arkansas by each individual locomotive in each class of service. The pro-

portion assigned to locomotives in work service was divided between freight and passenger upon basis of the assignment of maintenance-of-way charges in interstate commerce accounts 2 to 17 inclusive, for the reason, that by far the major portion of work locomotive mileage is made in connection with the maintenance of way and structures. The proportion assigned to switch locomotives in Arkansas was divided between freight and passenger on basis of the time devoted to freight and passenger service at all the yards within the State of Arkansas, as developed by an actual time study. The net charge or credit of this nature covering mixed train locomotives was divided between freight and passenger upon basis of the respective gross ton miles made for account of each class of service in mixed trains. The net charge or credit of this nature covering work car equipment was divided between freight and passenger on the basis of maintenance-of-way charges as set forth under the head of locomotives in work service.

Having accomplished a division of the hire of equipment charges and credits assignable to the State of Arkansas between freight and passenger service on the bases hereinbefore outlined, the subdivision between intrastate, interstate, mail and express was made for each class of equipment upon basis of the similar subdivision of operating expenses in the respective equipment repair accounts, as described in Exhibit No. 1 and the modifications thereof adopted by the St. Louis & San Francisco Railroad. This being the same basis as was employed for the assignment of equipment values to the various classes of traffic.

EXHIBIT 21. (1)*

## APPORTIONMENT OF OPERATING EXPENSES TO ARKANSAS AND DIVISION THEREOF BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS.

The operating expenses assignable to the State of Arkansas for the year ended June 30, 1913, and the division thereof between freight and passenger service, were determined in accordance with the provisions of the formula filed as Exhibit No. 1, and the modifications thereof, as set forth therein, adopted by the St. Louis & San Francisco Railroad. (See also explanatory Exhibits Nos. 2 and 3.)

(One exception made in following the basis laid down in Exhibit No. 1 (as modified) was in the adjustment, between the various classes of service, of the nonrevenue service costs. The principle laid down in the formula was followed, but the adjustment of the nonrevenue service costs for the year, was made on the basis of the similar adjustment for the months of November and December, 1913, as set forth in Exhibits Nos. 10 and 11. That is to say, the percentage of burden or relief on account of nonrevenue service performed by one revenue service for the other in November and December, 1913, was applied in making the adjustment of nonrevenue service costs in the operating expenses of the year ended June 30, 1913.)

(Another exception, in detail but not in principle, was that the passenger operating expenses in the five Interstate Commerce Commission groups under the heads of maintenance-of-Way and Structures, Maintenance of Equipment.

*Pages of the original exhibit.

(2) Traffic Expenses, Transportation Expenses, and General Expenses, determined as hereinbefore set forth, for the year ended June 30, 1913, were divided between passenger, and mail and express on the basis of the relative percentages of car-foot miles in mail and express and passenger carrying service, as determined for the months of November and December, 1913.)

The proportion of passenger expenses chargeable to passenger carrying service (after elimination of mail and express proportion) were divided between intrastate and interstate passenger traffic on basis of the respective passenger miles of each class for the year ended June 30, 1913, there being added, however, to the intrastate passenger miles 15.43 per cent, in arriving at factors for this division, this percentage representing the excess cost per passenger mile of intrastate passenger traffic over interstate passenger traffic, for all passenger operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17.

The freight proportion of operating expenses, determined as hereinbefore set forth, was divided between intrastate and interstate on basis of the respective ton-miles of each class for the year ended June 30, 1913, there being added, however, to the intrastate ton miles, in arriving at factors for this division, 319.58 per cent, this percentage representing the excess cost per ton mile of intrastate freight traffic over interstate freight traffic, for all freight operating expenses in the months of November and December, 1913, as set forth in Exhibit No. 17.

(3) These calculations which produced the operating expense figures set up in Exhibit No. 22, were as follows:

PASSENGER EXPENSES ASSIGNED TO ARKANSAS AND SUBDIVISION BETWEEN MAIL AND EXPRESS.

| | Passenger Proportion. (79.62%) | Mail and Express Proportion. (20.38%) | Total. |
|---|---|---|---|
| Maintenance-of-way and Structures | $249,821.67 | $ 63,945.81 | $ 313,767.48 |
| Maintenance of Equip. | 154,274.96 | 42,194.50 | 196,469.46** |
| Traffic Expenses | 42,438.11 | ..... | 42,438.11**** |
| Transportation Exp., | 406,001.94 | 88,473.89 | 494,475.83*** |
| General Expenses | 26,804.32 | 6,860.99 | 33,665.31 |
| Total | $879,341.00 | $201,475.19 | $1,080,816.19 |

The percentages shown above represent the proportions of car-foot miles devoted to passenger-carrying and mail and express service respectively, in the months of November and December, 1913.

**The car-foot mile percentage shown above (20.38 per cent) was applied to all maintenance-of-equipment expenses except repairs, renewals and depreciation of passenger train cars. By reason of the exclusion of Pullman car-foot mileage from the prorate of these accounts, mail and express was assigned 23.96 per cent.

***In dividing transportation expenses as above, the car-foot percentage (20.38 per cent) chargeable to mail and express, was not applied to station service, the railroad's proportion of wages of joint baggagemen and express messengers, or the wages of train auditors. The mail and express proportion of station expenses was assigned to that service direct on the basis of the time study made by agents in November and December, 1913, and described in Exhibit No. 2. The railroad's proportion of the wages of joint baggagemen and express

messengers not being chargeable to mail or express, was assigned direct to passenger, as was also the wages of train auditors.

****Traffic Expenses: No car-foot mileage elimination was made to charge mail and express, for the reason that no portion of traffic expenses is chargeable to mail and express traffic.

DIVISION OF PASSENGER EXPENSES ASSIGNED TO ARKANSAS (MAIL AND EXPRESS ELIMINATED AS ABOVE) BETWEEN INTRASTATE AND INTERSTATE TRAFFIC.

| | Intrastate. | Interstate. | Total. |
|---|---|---|---|
| Passenger one mile, year ended June 30, 1913 | 14,401,807 | 30,609,633 | 45,011,440 |
| Add 15.43% for excess cost | 2,222,199 | | 2,222,199 |
| Total | 16,624,006 | 30,609,633 | 47,233,639 |
| Percentage of each class | 35.20% | 64.80% | 100.00% |

| Passenger Expenses (Mail and Express eliminated): | Total | Intrastate Proportion. (35.20%) | Interstate Proportion. (64.80%) |
|---|---|---|---|
| Maintenance-of-way and Structures | $249,821.67 | $ 87,937.23 | $161,884.44 |
| Maintenance of Equipm't | 154,274.96 | 54,304.79 | 99,970.17 |
| Traffic Expenses | 42,438.11 | 14,938.21 | 27,499.90 |
| Transportation Expenses | 406,001.94 | 143,084.34 | 262,917.60 |
| General Expenses | 26,804.32 | 9,435.12 | 17,369.20 |
| Total | $879,341.00 | $309,699.69 | $569,641.31 |

DIVISION OF FREIGHT EXPENSES ASSIGNED TO ARKANSAS BETWEEN INTRASTATE AND INTERSTATE TRAFFIC:

| | Intrastate. | Interstate. | Total. |
|---|---|---|---|
| Tons one mile, year ended June 30, 1913 | 9,151,859 | 317,039,391 | 326,191,250 |
| Add 319.58% for excess cost | 29,247,511 | | 29,247,511 |
| Total | 38,399,370 | 317,039,391 | 355,438,761 |
| Percentage of each class | 10.80% | 89.20% | 100.00% |

| | Total | Intrastate Proportion. (10.80%) | Interstate Proportion. (89.20%) |
|---|---|---|---|
| Freight Expenses: | | | |
| Maintenance-of-way and Structures | $ 363,949.37 | $ 39,306.53 | $ 324,642.84 |
| Maintenance of Equip. | 406,760.75 | 43,930.16 | 362,830.59 |
| Traffic Expenses | 55,764.96 | 6,022.62 | 49,742.34 |
| Transportation Exp. | 1,117,178.64 | 119,815.39 | 997,363.25 |
| General Expenses | 92,100.48 | 9,291.86 | 82,808.62 |
| Total | $2,035.754.20 | $218,366.56 | $1,817.387.64 |

## EXHIBIT 23.

## EXPLANATION OF THE METHOD EMPLOYED IN ASCERTAINING THE FIGURES FOR EARNINGS AND EXPENSES ASSIGNED TO ARKANSAS, AND TO FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC, IN THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907, AS SET FORTH IN EXHIBITS NOS. 24, 25, 26 AND 27.

The St. Louis & San Francisco Railroad, in preparing the reports required by the Railroad Commission of the State of Arkansas during the years ended June 30, 1913, 1912, 1911 and 1910, used a formula for the allocation of revenues and expenses to that State which was uniformly applied throughout all of those years. It also had in use uniformly throughout all of the years mentioned a formula for the division of expenses between freight and passenger services for purposes of its own operating comparisons.

In order to accomplish a reassignment of earnings and expenses to Arkansas for the years ended June 30, 1912, 1911 and 1910, on basis of the new formula filed as Exhibit No. 1, in the time at the disposal of the railroad, and to avoid the enormous expense incident to reworking all of the voluminous detail, it was felt that a proper showing of Arkansas earnings and expenses divided between the freight and passenger services in the years ended June 30, 1912, 1911 and 1910, might be made by determining the RELATION of the results ob-

*Pages of the original exhibit.

tained for the year ended June 30, 1913, from an actual application, to the earnings and expenses of the railroad, of the new formula filed as Exhibit No. 1, and the formulas formerly used in making reports to the State Railroad Commission, and dividing expenses between freight and passenger for purposes of operating comparisons, and by equating the earnings and expenses, reported to the State Railroad Commission and as divided between freight and passenger, on basis of the percentage relation of the results of applying the formula filed as Exhibit No. 1 and the results of applying the Railroad Company's old formula to the earnings and expenses of the year ended June 30, 1913, in minute detail. That is to say, if a comparison of the results obtained under the formula filed as Exhibit No. 1, with the results obtained under the application of the railroad's old formula showed that in the year ended June 30, 1913, the new basis assigned, to Arkansas, or to freight and passenger, on a given item of earnings or expenses, 102 per cent of the amount assigned for the same item under the old formula, the amount assigned under the old formula in the years ended June 30, 1912, 1911 and 1910, and the four months ended December 31, 1907, has been increased 2 per cent. If, on the other hand, the amount assigned in the year ended June 30, 1913, under the formula filed as Exhibit No. 1 was 98 per cent of the amount assigned under the old formula in that year, the amount assigned under the old formula in the prior periods was reduced 2 per cent.

It is believed that this process of equation has resulted in a correct reflection of the assignment of earnings and expenses which would have been made to Arkansas, and between freight and passenger services, in the years ended June 30, 1912, 1911

and 1910, if the formula filed as Exhibit No. 1 had been applied thereto in detail.

This equation was applied only to such items as could not be actually allocated to Arkansas, or between freight and passenger, and could only be so allocated by means of a detailed analysis or prorate. Such items as permitted of actual direct allocation without analysis or prorate, were directly allocated in each of the years, namely, intrastate freight and passenger revenues, mail and express earnings, and special service train revenue.

In its report to the State Railroad Commission of Arkansas for the year ended June 30, 1908 (which, of course, included the four months ended December 31, 1907), the railroad had not made any assignment of earnings and expenses to Arkansas, but had reported to the Railroad Commission of that State the earnings and expenses of the entire railroad. In order, therefore, to carry out the plan hereinbefore outlined, it was necessary to assign expenses to Arkansas and between freight and passenger for the four months ended December 31, 1907, on basis of the railroad's old formula used in making such assignments and divisions in the years ended June 30, 1913, 1912, 1911 and 1910. It was then practicable to make the same equation of earnings and expenses for the four months ended December 31, 1907, as was made for the years ended June 30, 1912, 1911 and 1910.

The table on the following page shows the relation of the results of applying the formula filed as Exhibit No. 1, to the results of applying the railroad's old formula, both as to assignment of earnings and expenses to Arkansas, and between freight and passenger, for the year ended June 30, 1913.

YEAR ENDED JUNE 30, 1913.

| Earnings: | Amount Assigned to Arkansas Under Old Formula and Reported to State R. R. Commission. | Amount Assigned to Arkansas as Result of Applying New Formula Filed as Exhibit No. 1. | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Old Formula. |
|---|---|---|---|
| Freight—Interstate | $2,705,751.36 | $2,728,169.36 | 100.82% |
| Freight—Intrastate | 256,195.32 | 259,241.05* | 101.19% |
| Passenger—Interstate | 832,775.14 | 762,300.53 | 91.51% |
| Passenger—Intrastate | 407,911.16 | 407,911.16 | 100.00% |
| Excess Baggage | 13,391.52 | 13,598.81 | 101.55% |
| Mail | 97,329.22 | 97,329.22 | 100.00% |
| Express | 125,362.35 | 125,362.35 | 100.00% |
| Other Pas. Train Revenue | 746.39 | 654.67 | 87.71% |
| Switch Revenue | 13,869.76 | 12,431.78 | 89.63% |
| Special Service Train Rev. | 900.70 | 1,577.13 | 175.10% |
| Mis. Transportation Rev. | 245.26 | 261.55 | 106.64% |
| Sta. and Train Privileges | 3,080.44 | 2,569.51 | 83.41% |
| Parcel Room Receipts | 94.30 | 94.75 | 100.48% |
| Storage Freight | 5,101.82 | 5,743.66 | 112.58% |
| Storage Baggage | 554.80 | 558.75 | 100.71% |
| Car Service | 11,621.48 | 12,815.53 | 110.28% |
| Miscellaneous | 8,767.89 | 7,550.75 | 86.12% |
| TOTAL EARNINGS | $4,483,698.91 | $4,438,170.56 | 98.98% |

| Operating Expenses (Freight): | Amount Assigned to Arkansas and Reported to State R. R. Commission—Proportion Assigned to Frt. Under Old Formula. | Amount Assigned to Arkansas Frt. Service Under New Formula Filed as Exhibit No. 1. | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Old Formula |
|---|---|---|---|
| Maintenance-of-way and Structures | $ 322,071.01 | $ 363,949.37 | 113.00% |
| Maintenance of Equipm't | 410,250.21 | 406,760.75 | 99.15% |
| Traffic Expenses | 56,964.49 | 55,764.96 | 97.89% |
| Transportation Expenses | 1,010,166.09 | 1,117,178.64 | 110.59% |
| General Expenses | 75,619.25 | 92,100.48 | 121.80% |
| TOTAL | $1,875.071.05 | $2,035,754.20 | 108.57% |

*Not equated—original assignment allowed to stand, for reasons given on page 1 of Exhibit No. 4.

YEAR ENDED JUNE 30, 1913.

| Operating Expenses (Passenger): | Amount Assigned to Arkansas and Reported to State R. R. Commission—Proportion Assigned to Passenger Under Old Formula. | Amount Assigned to Arkansas Passenger Service Under New Formula Filed as Exhibit No. 1. | Percentage Relation of Assignment Under New Formula (Ex. No. 1) to Assignment Under Old Formula. |
|---|---|---|---|
| Maintenance-of-way and Structures | $ 284,123.24 | $ 313,767.48 | 110.43% |
| Maintenance of Equipm't | 209,356.92 | 196,469.46 | 93.84% |
| Traffic Expenses | 45,031.01 | 42,438.11 | 94.24% |
| Transportation Expenses | 553,598.66 | 494,475.83 | 89.32% |
| General Expenses | 66,709.48 | 33,665.31 | 50.47% |
| TOTAL | $1,158,819.31 | $1,080,816.19 | 93.27% |

The percentages arrived at as shown in the foregoing tables, were used to equate the earnings and expenses of the years ended June 30, 1912, 1911 and 1910, and the four months ended December 31, 1907, as set forth in Exhibits Nos. 24, 25, 26 and 27, with the exception of intrastate freight and passenger earnings, mail and express earnings, and special service train revenues, which, as previously stated herein, were actually allocated under the old formula in all of the periods mentioned and required no equation to put them upon the basis of the provisions of the new formula filed as Exhibit No. 1.

ASSIGNMENT OF EARNINGS TO INTRASTATE AND INTERSTATE, IN THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907.

In the preceding portion of this exhibit, there has been explained the method employed in assigning, to Arkansas, earnings for the periods indicated above on basis of a com-

parison of the results of applying the railroad's old formula with the results of applying the new formula filed as Exhibit No. 1, in the year ended June 30, 1913. In allocating to intrastate and interstate the earnings so assigned to Arkansas, the following method has been employed.

The major portion of the earnings were susceptible of actual allocation to intrastate and interstate, or had been so allocated under the railroad's old formula. These consisted of the following:

Freight Revenue.

Passenger Revenue.

Special Service Train Revenue.

The remainder of the earnings could not be allocated to intrastate or interstate without a detailed analysis, and the amounts of these assigned to Arkansas on the basis previously explained in the years ended June 30, 1912, 1911 and 1910, and the four months ended December 31, 1907, were divided between intrastate and interstate on basis of the assignment made as the result of analysis or prorate in accordance with provisions of Exhibit No. 1 in the year ended June 30, 1913. The earnings assigned as above consisted of the following:

Excess Baggage.

Other Passenger Train Revenue.

Switch Revenue.

Station and Train Privileges.

Parcel Room Receipts.

Storage Freight.

Storage Baggage.

Car Service.

Miscellaneous Transportation Revenue.

Miscellaneous Revenue (Nontransportation).

The percentage relations of the assignment of the foregoing earnings, intrastate and interstate, in the year ended June 30, 1913 (see Exhibit No. 22), were as follows:

| | INTRASTATE. | | INTERSTATE. | |
|---|---|---|---|---|
| | Amount. | Per Cent of Total | Amount. | Per Cent of Total. |
| Excess Baggage .... | $5,077.10 | 37.34% | $ 8,521.71 | 62.66% |
| Other Passenger Train Revenue ..... | 424.65 | 64.86% | 230.02 | 35.14% |
| Switch Revenue..... | 125.72* | 1.01%* | 12,557.50 | 101.01% |
| Station and Train Privileges ..... | 822.24 | 32.00% | 1,747.27 | 68.00% |
| Parcel Room Receipts | 56.68 | 59.82% | 38.07 | 40.18% |
| Storage Freight..... | 517.05 | 9.00% | 5,226.61 | 91.00% |
| Storage Baggage ... | 337.06 | 60.32% | 221.69 | 39.68% |
| Car Service ..... | 3,562.67 | 27.80% | 9,252.86 | 72.20% |
| Miscellaneous Transportation Revenue: | | | | |
| Freight Proportion.. | None | | 7.00 | 100.00% |
| Passenger Proportion | 4.00 | 1.57% | 250.55 | 98.43% |
| Miscellaneous Nontransportation Revenue: | | | | |
| Freight Proportion.. | 425.70 | 8.79% | 4,419.51 | 91.21% |
| Passenger Proportion | 551.10 | 20.37% | 2,154.44 | 79.63% |

ASSIGNMENT OF EXPENSES TO MAIL AND EXPRESS TRAFFIC IN THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907.

The mail and express traffic of the periods mentioned above was assigned the same percentage proportion of pas-

*Denotes red figures.

senger expenses as was assigned to mail and express traffic for the year ended June 30, 1913, as set forth in Exhibit No. 22, as follows:

YEAR ENDED JUNE 30, 1913.

| | Straight Passenger Expenses. | Mail and Express Expenses. | Total Passenger and Mail and Express Expenses. | Mail and Exp. Per Ct. of Total |
|---|---|---|---|---|
| Maintenance-of-way and Structures.. | $249,821.67 | $63,945.81 | $313,767.48 | 20.38% |
| Maintenance of Equipment .... | 154,274.96 | 42,194.50 | 196,469.46 | 21.48% |
| Transportation ... | 406,001.94 | 88,473.89 | 494,475.83 | 17.89% |
| General ..... | 26,804.32 | 6,860.99 | 33,665.31 | 20.38% |

ASSIGNMENT BETWEEN INTRASTATE AND INTERSTATE TRAFFIC FOR THE YEARS ENDED JUNE 30, 1912, 1911 AND 1910, AND THE FOUR MONTHS ENDED DECEMBER 31, 1907, OF THE EXPENSES ASSIGNED TO FREIGHT AND PASSENGER SERVICES (AFTER THE ASSIGNMENT TO MAIL AND EXPRESS TRAFFIC OF ITS PROPORTION OF PASSENGER EXPENSES:

This assignment was made in the case of freight on the basis of the ton miles actually hauled in each of the periods mentioned above, with the percentage of extra cost of intrastate business, as determined for the year ended June 30, 1913, added to the intrastate traffic. This percentage of extra cost was determined as follows:

YEAR ENDED JUNE 30, 1913.

| | | |
|---|---|---|
| Intrastate Freight Expenses (Exhibit No. 22) | $ 218,366.56 | |
| Intrastate Ton Miles | 9,151,859 | |
| Cost per Ton Mile (cents) | | 2.3860 |
| Interstate Freight Expenses (Exhibit No. 22) | 1,817,387.64 | |
| Interstate Ton Miles | 317,039,391 | |
| Cost per Ton Mile (cents) | | .5732 |
| Excess cost of intrastate over interstate: | | |
| Amount (cents) | | 1.8128 |
| Percentage | | 316.25% |

The same method was employed in the assignment of passenger expenses between intrastate and interstate, the extra cost burden being determined for the year ended June 30, 1913, as follows:

YEAR ENDED JUNE 30, 1913.

| | | |
|---|---|---|
| Interstate Passenger Expenses (Exhibit No. 22) | $ 309,699.69 | |
| Intrastate Passenger Miles | 14,401,807 | |
| Cost per Passenger Mile (cents) | | 2.1504 |
| Interstate Passenger Expenses (Exhibit No. 22) | 569,641.31 | |
| Interstate Passenger Miles | 30,609,633 | |
| Cost per Passenger Mile (cents) | | 1.8610 |
| Excess cost of intrastate over interstate: | | |
| Amount (cents) | | .2894 |
| Percentage | | 15.55% |

It will be noted that the percentages of extra cost shown above for the year ended June 30, 1913, vary slightly from those determined for the months of November and December, 1913 as set forth in Exhibit No. 17, and which were applied in the division of expenses for the year ended June 30, 1913.

The reason for this difference is that in applying the extra cost percentages determined in the months of November and December, 1913, to the expenses of the year ended June 30. 1913, the expenses of loss and damage freight, and loss and damage baggage, were excluded from consideration, as they were actually allocated as between intrastate and interstate.

EXHIBIT No. 24

APPORTIONMENT OF TAXES FOR THE YEAR ENDED JUNE 30, 1912, BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC.

STATE, MUNICIPAL AND COUNTY TAXES:

The Taxes of this character, accruing in Arkansas on the property of the St. Louis and San Francisco Railroad during the year ended June 30, 1912, amounted to $224,900.41.

These Taxes have been divided between the various classes of Traffic on basis of the apportionment of value of property (as set forth on page 11 of this Exhibit) as follows:

APPORTIONMENT OF VALUE OF PROPERTY

| | Amount | Percent of Total |
|---|---|---|
| INTRASTATE: | | |
| Freight | $ 2,285,350.00 | 9.21% |
| Passenger | 2,062,502.00 | 8.31% |
| INTERSTATE: | | |
| Freight | 15,302,242.00 | 61.66% |
| Passenger | 3,830,805.00 | 15.43% |
| MAIL AND EXPRESS | 1,337,083.00 | 5.39% |
| Total | $24,817,982.00 | 100.00% |

TAXES APPORTIONED ON FOREGOING PERCENTS:

| | Percent | Amount of Taxes |
|---|---|---|
| INTRASTATE: | | |
| Freight | 9.21% | $ 20,713.33 |
| Passenger | 8.31% | 18,689.23 |
| INTERSTATE: | | |
| Freight | 61.66% | 138,673.59 |
| Passenger | 15.43% | 34,702.13 |
| MAIL AND EXPRESS | 5.39% | 12,122.13 |
| Total | 100.00% | $224,900.41 |

(Continued—1)

EXHIBIT No. 24

APPORTIONMENT OF TAXES FOR THE YEAR ENDED JUNE 30, 1912, BETWEEN FREIGHT AND PASSENGER INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC.

Federal Income Tax:

This assignment was made on basis of the relation of the net earnings assigned to Arkansas on Page 15 of this Exhibit (After deducting operating expenses and State, Municipal and County Taxes) to similar net earnings of the entire line for the same period, as follows:

| | Entire Line | Arkansas | Other States |
|---|---|---|---|
| Net Earnings | $11,092,170.07 | $962,528.31 | $10,129,641.76 |
| Percent of Total | 100.00% | 8.68% | 91.32% |
| Tax Divided on Above Percents | $ 77,654.70 | $ 6,740.43 | $ 70,914.27 |

The Arkansas Proportion of this tax, viz.: 8.68% has been divided between Freight and Passenger, Intrastate, Interstate and Mail and Express on basis of the net earnings of each class (After deducting State, Municipal, and County Taxes) as shown on Page 15 of this Exhibit.

This apportionment was made as follows:

| | Arkansas Net Earnings | | Arkansas Proportion of Tax |
|---|---|---|---|
| | Amount | Percent of Total | |
| Intrastate: | | | |
| Freight | $ 26,327.33* | 2.73%* | $ 184.01* |
| Passenger | 111,143.22 | 11.54% | 777.85 |
| Interstate: | | | |
| Freight | 646,891.58 | 67.21% | 4,530.24 |
| Passenger | 215,942.75 | 22.43% | 1,511.88 |
| Mail and Express | 14,878.09 | 1.55% | 104.47 |
| Total | $962,528.31 | 100.00% | $6,740.43 |

*Denotes Red Figures.

(Continued--1½)

DETAIL OF NET RENTAL CREDIT—(ARKANSA

INTRASTAT

| | FREIGHT | PASSENGER |
|---|---|---|
| RENTAL INCOME: | | |
| I. C. C. account No. 18.—Rents of Buildings and Other Property | $ 112.05 | $ 3,872.94 |
| Joint Facilities Rent—Income | 340.92 | 2,338.13 |
| Memphis Bridge Rent—Income | ..... | ..... |
| TOTAL—Rental Income | $ 452.97 | $ 6,211.07 |
| RENTAL DEDUCTIONS: | | |
| Joint Facilities Rent—Deductions | $ 3.05 | $ 234.58 |
| Joint Facilities Revenue—Debit (I. C. C. Account No. 20) | ..... | 3.18 |
| Rental of Kansas City Fort Scott and Memphis Railway | 3,607.79 | 29,207.95 |
| TOTAL—Rental Deductions | $3,610.84 | $29,445.71 |
| Net Rental Credit | *$3,157.87 | *$23,234.64 |

*Denotes Red Figures.

EXHIBIT No. 24

APPORTIONMENT OF NET DEBIT FOR HIRE OF EQUIPMENT, FOR THE YEAR ENDED JUNE 30TH, 1912, TO ARKANSAS AND BETWEEN FREIGHT AND PASSENGER, INTRASTATE AND INTERSTATE, MAIL AND EXPRESS TRAFFIC.

Assignment was made to Arkansas on the basis provided in the Formula filed as Exhibit No. 1, as follows:

| | Entire Line | Arkansas | Arkansas Percent of Total |
|---|---|---|---|
| Locomotive Mileage | 25,551,370 | 2,616,700 | 10.24% |
| Freight Train Car Mileage | 231,004,643 | 24,947,514 | 10.80% |
| Passenger Train Car Mileage —Pullman | 9,967,832 | 933,940 | 9.37% |
| Passenger Train Car Mileage —Other Cars | 40,122,263 | 4,096,030 | 10.21% |
| Work Car Mileage | 5,851,171 | 946,149 | 16.17% |

The net credit or debit for Hire of the various classes of equipment for the entire line for the year ended June 30th, 1912, was apportioned on basis of the above percentages, as follows:

| | Net Debit Entire Line | Arkansas Percentage | Arkansas Prop'n of Net Debit |
|---|---|---|---|
| Locomotives (Credit) | $ 64,773.89* | 10.24% | $ 6,632.85* |
| Freight Cars | 167,416.54 | 10.80% | 18,080.99 |
| Passenger Train Cars—Pullman | 35,502.17 | 9.37% | 3,326.55 |
| Passenger Train Cars—Other Cars (Credit) | 59,832.09* | 10.21% | 6,108.86* |
| Work Cars (Credit) | 41,601.04* | 16.17% | 6,726.89* |
| Total Net Debit | $ 36,711.69 | ..... | $ 1,938.94 |

*Denotes Red Figures.

(Continued—3)

EXHIBIT No. 24

The Arkansas proportion of Hire of Equipment credit or debit determined as above was divided between Freight and Passenger, Intrastate, Interstate and Mail and Express on basis of the division of Equipment valuation as set forth on page 11 of this Exhibit, as follows:

LOCOMOTIVE CREDIT:

Total locomotive credit was divided between Freight and Passenger on basis of assigned Arkansas valuation as set forth on page 11 of this Exhibit.

| | Assigned Value | Percent of Total | Hire of Equipment Credit |
|---|---|---|---|
| Intrastate: | | | |
| Freight | $ 87,419.00 | 7.17% | $ 475.57 |
| Passenger | 150,210.00 | 12.32% | 817.17 |
| Interstate: | | | |
| Freight | 585,232.00 | 48.00% | 3,183.77 |
| Passenger | 278,961.00 | 22.88% | 1,517.60 |
| Mail and Express | 117,412.00 | 9.63% | 638.74 |
| Total | $1,219,234.00 | 100.00% | $ 6,632.85 |

FREIGHT CAR—DEBIT:

Divided as follows:

| | Assigned Value | Percent of Total | Hire of Equipment Debit |
|---|---|---|---|
| Intrastate | $ 376,835.00 | 12.99% | $ 2,348.72 |
| Interstate | 2,524,128.00 | 87.01% | 15,732.27 |
| Total | $2,900,963.00 | 100.00% | $18,080.99 |

PASSENGER TRAIN CAR—CREDIT:

Divided as follows:

| | Assigned Value | Percent of Total | Hire of Equipment Credit |
|---|---|---|---|
| Intrastate | $ 151,483.00 | 27.49% | $ 764.86 |
| Interstate | 281,201.00 | 51.03% | 1,419.81 |
| Mail and Express | 118,366.00 | 21.48% | 597.64 |
| Total | $ 551,050.00 | 100.00% | $ 2,782.31 |

(Continued—4)

WORK EQUIPMENT—CREDIT:
Divided as follows:

EXHIBIT No. 24.

| | Assigned Value | Percent of Total | Hire of Equipment Credit |
|---|---|---|---|
| Intrastate: | | | |
| Freight | $ 15,930.00 | 7.17% | $ 482.32 |
| Passenger | 27,372.00 | 12.32% | 828.75 |
| Interstate: | | | |
| Freight | 106,642.00 | 48.00% | 3,228.91 |
| Passenger | 50,833.00 | 22.88% | 1,539.11 |
| Mail and Express | 21,395.00 | 9.63% | 647.80 |
| Total | 222,172.00 | 100.00% | $6,726.89 |

SUMMARY OF ARKANSAS PROPORTION OF NET DEBIT—HIRE OF EQUIPMENT

| | Intrastate | | Interstate | | Mail and Express | Total |
|---|---|---|---|---|---|---|
| | Freight | Passenger | Freight | Passenger | | |
| Locomotives | $ 475.57* | $ 817.17* | $ 3,183.77* | $1,517.60* | $ 638.74* | $ 6,632.85* |
| Freight Cars | 2,348.72 | ..... | 15,732.27 | ..... | ..... | 18,080.99 |
| Passenger Cars | ..... | 764.86* | ..... | 1,419.81* | 597.64* | 2,782.31* |
| Work Equipment | 482.32* | 828.75* | 3,228.91* | 1,539.11* | 647.80* | 6,726.89* |
| Total | $1,390.83 | $2,410.78* | $ 9,319.59 | $4,476.52* | $1,884.18* | $ 1,938.94 |

*Denotes Red Figures.

(Continued—5)

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EXHIBIT No. 24

THE ORIGINAL COST VALUE OF ROADWAY AND STRUCTURES IN ARKANSAS AS OF JUNE 30, 1912, AS DETERMINED BY THE RAILROAD'S CHIEF ENGINEER, ALSO ASSIGNMENT OF EQUIPMENT VALUES TO ARKANSAS AS OF JUNE 30, 1912. DIVISION OF THE VALUE OF ROADWAY AND STRUCTURES AND EQUIPMENT AS OF JUNE 30, 1912, BETWEEN THE VARIOUS CLASSES OF TRAFFIC FOR YEAR ENDED JUNE 30, 1912.

The original cost of the Roadway and Structures property of which the Railroad stood possessed as of June 30, 1912, was determined by the Railroad's Chief Engineer as $19,924,563.00.

In assigning locomotive values to the State of Arkansas for the year ended June 30, 1913, on the basis of "Value Mileage," it was found (as shown in Exhibit No. 18) that 9.13% of the total value of the Railroad's locomotive equipment was assignable to Arkansas, based upon the value and mileage of locomotives operating in Arkansas during that year. During the year ended June 30, 1913, the actual locomotive mileage run in Arkansas was 9.97% of the total locomotive mileage run upon the entire railroad. During the year ended June 30, 1912, the Arkansas proportion of the total actual locomotive mileage of the entire railroad was 10.24%. It is therefore assumed that if the "Value Mileage" percentage of locomotive values assignable to Arkansas in the year ended June 30, 1913, namely 9.13%, be used in assigning locomotive values to Arkansas, in the year ended June 30, 1912, that a *minimum* assignment of locomotive values to Arkansas, in the latter period, will have been made. In justification of this assumption, it should be stated that the Railroad has no regular locomotive assignment to the State of Arkansas, but moves its locomotives at frequent intervals from one operating division to another, and from State to State, and that the types of locomotives in service in Arkansas are representative and typical of the Railroad's entire locomotive equipment.

For the reasons stated above, therefore 9.13 percent of the book value of all locomotives owned by the Company as of June 30, 1912, has been allotted to Arkansas as the locomotive value properly assignable to that State for the year ended June 30, 1912. The book value of all locomotives owned by the Company as of June 30, 1912, was $13,354.154.00. 9.13 percent of $13,354,154.00 is $1,219,234.00.

(Continued—6)

EXHIBIT No. 24

The total book value of freight train cars owned by the Railroad as of June 30, 1912, was $26,860,764.00. Of this amount there has been assigned to Arkansas a car mile proportion, as follows:

| | Arkansas | Other States | Total |
|---|---|---|---|
| Freight Train Car Miles— | | | |
| Year ended June 30, 1912 | 24,947,514 | 206,057,129 | 231,004,643 |
| Percentage of total | 10.80% | 89.20% | 100.00% |
| Value divided on above percents | $ 2,900,963 | $23,959,801 | $ 26,860,764 |

The total book value of passenger train cars owned by the railroad as of June 30, 1912, was $5,397,157.00. Of this amount there has been assigned to Arkansas a car mile proportion as follows:

| | Arkansas | Other States | Total |
|---|---|---|---|
| Passenger Train Car Miles —Year ended June 30, 1912 | 4,096,030 | 36,026,233 | 40,122,263 |
| Percentage of total | 10.21% | 89.79% | 100.00% |
| Value divided on above percents | $ 551,050 | $ 4,846,107 | $ 5,397,157 |

The total book value of work equipment owned by the railroad as of June 30, 1912, was $1,373,974. Of this amount there has been assigned to Arkansas a work car mile proportion as follows:

(Continued—7)

| | Arkansas | Other States | Total |
|---|---|---|---|
| Work Car Miles—Year ended June 30, 1912... | 946,149 | 4,905,022 | 5,851,171 |
| Percentage of Total..... | 16.17% | 83.83% | 100.00% |
| Value divided on above percents..... | $222,172.00 | $1,151,802.00 | $1,373,974.00 |

The total value of equipment assignable to Arkansas for the year ended June 30, 1912, as set forth above is summarized as follows:

| | |
|---|---|
| Locomotives | $1,219,234.00 |
| Freight Train Cars | 2,900,963.00 |
| Passenger Train Cars | 551,050.00 |
| Work Equipment | 222,172.00 |
| Total | $4,893,419.00 |

## DIVISION OF THE VALUE OF PROPERTY BETWEEN THE VARIOUS CLASSES OF TRAFFIC

Following the method set forth in Exhibit No. 18 for the division of value of property for the year ended June 30, 1913, the proportion of property value applicable to the business of the year ended June 30, 1912, in Arkansas, as set forth in the preceding pages of this Exhibit, has been divided directly between Freight and Passenger Intrastate and Interstate, and Mail and Express, the value of Roadway and Structures on basis of transportation expenses, and the value of Equipment on basis of equipment Maintenance Expenses, as set forth in the table below: (The expense figures used are those of the year ended June 30, 1912:)

| | Amount | Percent of Total |
|---|---|---|
| TRANSPORTATION EXPENSES: | | |
| Intrastate—Freight | $ 138,012.83 | 9.06% |
| " —Passenger | 132,625.06 | 8.70% |
| Interstate—Freight | 924,441.57 | 60.66% |
| " —Passenger | 246,195.44 | 16.16% |
| Mail and Express | 82,536.82 | 5.42% |
| Total | $1,523,811.72 | 100.00% |

(Continued—8)

| | Amount | Percent of Total |
|---|---|---|
| LOCOMOTIVE—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Freight | $ 17,326.55 | 7.17% |
| " —Passenger | 29,800.96 | 12.32% |
| Interstate—Freight | 116,057.18 | 48.00% |
| " —Passenger | 55,320.31 | 22.88% |
| Mail and Express | 23,285.85 | 9.63% |
| Total | $241,790.85 | 100.00% |
| FREIGHT TRAIN CARS—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Freight | $ 26,038.15 | 12.99% |
| Interstate—Freight | 174,409.47 | 87.01% |
| Total | $200,447.62 | 100.00% |
| PASSENGER TRAIN CARS—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Passenger | $ 14,319.24 | 27.49% |
| Interstate—Passenger | 26,581.19 | 51.03% |
| Mail and Express | 11,188.75 | 21.48% |
| Total | $ 52,089.18 | 100.00% |
| WORK EQUIPMENT—REPAIRS, RENEWALS AND DEPRECIATION: | | |
| Intrastate—Freight | $ 1,158.82 | 7.17% |
| " —Passenger | 1,993.12 | 12.32% |
| Interstate—Freight | 7,762.03 | 48.00% |
| " —Passenger | 3,699.89 | 22.88% |
| Mail and Express | 1,557.38 | 9.63% |
| Total | $ 16,171.24 | 100.00% |

The Roadway and Structures value as of June 30, 1912, is, as heretofore stated, $19,924,563.00. The division of this value on basis of transportation expense percentages hereinbefore set forth, has been made as follows:

| | Transportation Expense Percentages | Division of Value |
|---|---|---|
| Intrastate—Freight | 9.06% | $ 1,805,166.00 |
| " —Passenger | 8.70% | 1,733,437.00 |
| Interstate—Freight | 60.66% | 12,086,240.00 |
| " —Passenger | 16.16% | 3,219,810.00 |
| Mail and Express | 5.42% | 1,079,910.00 |
| Total | 100.00% | $19,924,563.00 |

(Continued—9)

EXHIBIT No. 24

The locomotive valuation as of June 30, 1912, amounting to $1,219,234.30, has been divided on basis of locomotive maintenance expense percentages as follows:

| | Locomotive Maintenance Expense Percentages | Division of Value |
|---|---|---|
| Intrastate: | | |
| Freight | 7.17% | $ 87,419.00 |
| Passenger | 12.32% | 150,210.00 |
| Interstate: | | |
| Freight | 48.00% | 585,232.00 |
| Passenger | 22.88% | 278,961.00 |
| Mail and Express | 9.63% | 117,412.00 |
| Total | 100.00% | $1,219,234.00 |

The value of freight train cars as of June 30, 1912, amounting to $2,900,962.50, has been divided on basis of freight car maintenance expense percentages, as follows:

| | Freight Train Car Maintenance Percentages | Division of Value |
|---|---|---|
| Intrastate Freight | 12.99% | $ 376,835.00 |
| Interstate Freight | 87.01% | 2,524,128.00 |
| Total | 100.00% | $2,900,963.00 |

The value of passenger train cars as of June 30, 1912, amounting to $551,049.68, has been divided on basis of passenger train car maintenance expense percentages, as follows:

| | Passenger Train Car Maintenance Percentages | Division of Value |
|---|---|---|
| Intrastate Passenger | 27.49% | $ 151,483.00 |
| Interstate Passenger | 51.03% | 281,201.00 |
| Mail and Express | 21.48% | 118,366.00 |
| Total | 100.00% | $ 551,050.00 |

(Continued—10)

Office Supreme Court, U. S.
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# REPLY TO NEW BRIEF of the RAILROAD COMPANY

IN THE

# Supreme Court of the United States

NO. 252.

J. SAM ROWLAND, WILLIAM F. McKNIGHT AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF ARKANSAS, APPELLANTS,

Vs.

ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, APPELLEES.

## "The Frisco Rate Case"

JOSEPH M. HILL,
Special Counsel for the State of Arkansas.

CALVERT-McBRIDE PRINTING CO., FT. SMITH, ARK.

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NO. 252.

IN THE

# Supreme Court of the United States

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J. SAM ROWLAND, WILLIAM F. McKNIGHT AND THOMAS E. WOOD, RAILROAD COMMISSIONERS OF ARKANSAS, APPELLANTS,

Vs.

ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY, APPELLEES.

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## REPLY TO NEW BRIEF OF THE RAILROAD COMPANY

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The Railroad Company has served a new brief, whether in lieu of the former brief or in addition thereto, I am not advised. Much of the former brief is repeated in this brief and this reply will be confined to new matter in it.

### SOME OF THE ERRORS IN THE NEW BRIEF.

1. On Page 3, it is stated that the evidence on the preliminary hearing in support of the application for a temporary injunction covered the result of operations for the months of September, October, November and December of 1907, and the evidence on the final hearing was taken in 1914, and covered the fiscal years 1910, 1911, 1912 and 1913 and the last four months of the calendar year 1907. The evidence does not cover the operations for the fiscal years 1910, 1911, 1912 and 1913, other than through a nunc pro tunc proceeding

by which the operations of the two months of November and December, 1913 were transposed back into these years by an equating process, on the theory that these months of November and December, 1913, represented all of the preceding years, as well as the four months' period of 1907. The statement continues that these two months were shown to be in all respects, normal; it is true that Mr. Hamilton put in a series of exhibits known as "Normality Exhibits", which he claimed, did show this fact, but an analysis of these exhibits show the exact contrary as heretofore pointed out in my first brief, on pages 34-35. Next, it is stated, that the application of the test result to the four years, 1910 to 1913, inclusive, was amply sufficient to demonstrate beyond real controversy the confiscatory nature of both the passenger fare statute and the Commission's schedule of freight rates. If the major premise of the railroad company's argument, which is that the formula is correct as a whole, and its many minor premises, such as that the test period of 1913, represented the conditions in 1907, as well as the intervening years, and that the time studies introduced were competent evidence, and not hearsay, and that the hundreds of bases used in the formula were each correct, then this statement might be true.

2. On page 4, it is stated that the defendants realized that the evidence overwhelmingly established the confiscatory nature of the passenger fare statute and the Commission freight rates for the years 1910, 1911, 1912 and 1913 and undertook by a process of equation, to create a hypothetical and fictitious condition for the four months of 1907, for the purpose of basing an argument thereon, that such rates were not confiscatory for that period. No hypothetical condition was created by the exhibits referred to, nor was a fictitious condition created for the four months' period of 1907. The facts were that the normality exhibits put in evidence by the railroad company as a justification of the equating back process pursued by it, showed that the four months' period was not an average, or normal, condition of the affairs of the railroad company. These exhibits were supplemented by others on behalf of the State, and from the exhibits of the railroads and those of the State supplementary thereto, it is found that this was not an average period and not representative. These exhibits of the State merely show the normal and average condition of the road for a series of years and bring the four months period to a normal or average period.

3. On page 5 it is said that the defendants' evidence and brief present to the Court as the proper measure of whether or not the two-cent passenger rate and the Commission's freight rates are compensatory, the combined state and interstate results. There is no basis for this statement. The state did prepare exhibits correcting many of the errors and calculation and methods used by the railroads in their exhibits in order to show the true rate of return that the railroad was earning on all of its business in Arkansas, or to be more accurate, to show the minimum rate of return earned from all of its business in Arkansas. These exhibits show the Railroad on its whole business in the State, was earning far more than a compensatory return; therefore there must be a clear separation of the expenses and property between state and interstate before intra-state rates could be assumed to be confiscatory, and a convincing showing that the intrastate is causing losses. In the Minnesota and Missouri Rate Cases, it developed that several of the railroads were earning on the whole business less than a compensatory return, and were threatened with further reductions through the rates than under attack. When the whole business was shown to be confiscatory and the intrastate business about to be further reduced, in the absence of a showing that the intrastate business was itself compensatory and the losses were due to the interstate rates, the Court awarded injunctions against the further reduction of rates; the very reverse of that situation is presented here. These exhibits referred to by counsel show that the railroad as a whole was making a compensatory return in Arkansas.

When it is found the road as a whole, in the state, is prospering, certainly, it must show a satisfactory plan of separating the expenses and property of the two classes before it carries conviction that one class is a losing venture and the other class so profitable that it makes up those losses and a good return on all the property including that upon which the losses occur.

4. On pages 5 and 6 the State is criticised for not attempting to measure the compensatory nature of the intra-state passenger rate and state freight rates by the return realized on the state business alone, or by the return reduced to a hypothetical rate of two cents per mile while the railroad did not operate upon that rate: in other words, the State is criticis-

ed for not doing what the railroad company has failed to do; that is prepare a proper formula for separating state and interstate expenses and property and revenue.

5. On page 6 it is stated that the plaintiff presented to the Court a proper formula for the allocation of the intra-state revenues, expenses and values to the State and for the apportionment of such expenses and values in accordance with the use made of the property by the several classes of the traffic. If it had been said that plaintiff presented a formula *purporting* to do this, such would have been a correct statement. It is said that complete and convincing evidence was offered in support of the provisions of the formula, the compilation of special statistics thereunder and their applicability to prior years, and the confiscatory results of the two-cent passenger fare statute and the Commission's schedule of freight rates. "The complete and convincing testimony" was the expert opinions of Mr. Nay and Mr. Hamilton that the formula and all of its component parts was correct, and the expert opinion of Mr. Symons assigning, on his experience and judgment the maintenance of equipment expenses between line and terminal, thereby working out an immense amount of expenses against the state under the guise of terminal expenses which do not properly belong to it, and the great bulk of expenses divided on time studies that no one who made them supported as a witness.

Against this opinion and hearsay evidence was the testimony of Mr. Nay given in the former Arkansas Rate Case, condemning in unmeasured terms many of the factors used in this formula, and the mathematical demonstration that the formula was inherently unsound; and the proof from the railroads exhibits supplemented by those prepared by the state that the test period of 1913 was not representative of the period of inquiry, the last four months of 1907, nor representative of the series of years under review, and the inherent and demonstrated errors of it. Furthermore, a comparison of revenues state and interstate, shows that the state rates are higher per ton mile and per passenger mile than the interstate. All of these matters have been developed in preceeding briefs and they are referred in answer to aforesaid dogmatic statements.

6. On page 8 it is said that an apportionment has also been made of interstate revenues of the state for informa-

tion and comparison but that these revenues are not important factors in ascertaining whether or not the passenger fare statute and the Commission freight rates yield a fair return upon the value of the property employed in conducting state business. As far back as Smyth vs. Ames, this Court ruled that an inadequate state revenue cannot be supplemented by an adequate interstate revenue, and as recently as the West Virginia Rate Case this Court ruled that a railroad was entitled to an adequate return from both its passenger and freight rates and one cannot be supplemented by the other in order to make an adequate return on the two combined sufficient to meet the constitutional guaranty.

The state's exhibits demonstrate it to be a fact that the total net return of this railroad in Arkansas is much over seven per cent on the value of its property used by it in the State, and it is thought to be of prime importance that the court know this, in order that the court may properly determine the charge that an integral part of that business is being conducted at a loss. The evidence must be clear, convincing and satisfactory in order to overcome the presumption ordinarily raised that a system of rates promulgated by a State are compensatory, and much more evidence should be required in order to convince the court that the system of rates promulgated by the state are confiscatory when it is shown that the complaining road is earning a good return upon all of its property used in that state, and that the state revenues are appreciably higher per ton per mile and per passenger mile for the state business than for the interstate. These are the demonstrated facts in this case, and therefore the charge of confiscation must be proved through a separation of the state expenses from the interstate and of the state property from the interstate property. In making these calculations the state has used the railroad's theory of computing interstate revenue in the state. This is a new and novel theory finding its genesis in the formula. The plaintiff's exhibit No. 4 (R. p. 1962) sets it forth:

Proceeding on the assumption as indicated by the principle of the formula that it costs the same per ton for a given terminal or station handling of a ton of intrastate freight as it does for a similar handling of a ton of interstate freight, and it costs the same for the haulage of a ton mile of intrastate freight that it does for a ton mile of inter-state freight,

(and the same theory as to passengers), that an allowance of revenue should be made in the state considered to compensate for the cost of terminal service out of the state, and having determined from the operations of the formula the cost per ton per terminal and the cost per ton mile for line expenses (and the same as to passenger service), and therefore, the units of cost per ton per terminal and the units of cost per ton mile (and the same for passengers), was used to obtain a corresponding equivalent mileage to compensate for the expense of the terminal of the interstate freight and passenger outside of the state; in other words, a number of constructive miles were added to the actual miles of each ton and each passenger carried in order to make what would amount to a deduction from the interstate revenue for the expenses of the terminal service of freight and passengers outside the limits of the state. To illustrate by inaccurate figures which are simpler than the actual figures, suppose a ton of freight had a total mileage of 500 miles on the 'Frisco road and 100 miles of this was in Arkansas, under the practice in previous rate cases one-fifth of the revenue derived from that haul would be assigned as the Arkansas proportion of it; assume that neither terminal was in Arkansas, therefore no terminal expenses were incurred in Arkansas for this 500 mile haul and that the terminal expenses were equivalent to a haul of 50 miles, then for the two terminal expenses of this freight, none of which was incurred in Arkansas, there would be added 100 miles, making a constructive mileage of 600 miles, 100 of it being in Arkansas, one sixth of the revenue of this haul, instead of one-fifth of it, would be apportioned as Arkansas' proportion of the interstate revenue for that particular haul. In order to make these calculations and to make the apportionment of the interstate revenue, it was assumed in Exhibit 4 and stated to be a fact that the terminal expenses in Arkansas were closely reflective of the average cost per ton for similar service in the other states in which the St. Louis and San Francisco railroad operates, and it further assumed that the average haulage cost per ton mile in Arkansas was reflective of the average haulage cost per ton mile of the other states in which the St. Louis & San Francisco Railroad operates. Many pages of the new brief are devoted to arguing that the terminal expenses in Arkansas are not closely reflective of the terminal expenses on the balance of the 'Frisco sys-

tem and that the terminal expenses in Arkansas are much higher than the terminal expenses of the system as a whole; in other words much of this argument is to refute the statements in Exhibit 4, and the testimony of Mr. Hamilton in support of it, which has heretofore been set out fully in previous briefs. If it be true that the terminal expenses in Arkansas are much higher than on the 'Frisco system as a whole, then excessive allowances have been made in the way of constructive mileage to compensate for the expenses of terminals outside of Arkansas in the apportionment of interstate revenue to Arkansas; therefore, if the argument of the Railroad Company that its exhibit is untrue and the testimony of Mr. Hamilton in support of it unreliable, necessarily the interstate revenue assigned to Arkansas is too small and on a proper apportionment of it and recalculation of the total net income of the 'Frisco Railroad in Arkansas, it would be shown that the total net income is higher than shown in the state's exhibits wherein it is shown to be considerably over seven per cent per annum.

7. On Page 9 it is said the roadway and the passenger equipment are used chiefly in the line service, but it is necessary to stop passenger trains to perform terminal service, in receiving and unloading passengers, and that the time so spent in this character of service should be and is classed as terminal service. This is one of the erroneous theories in drawing a distinction between what is called line and terminal service in this formula. The passenger train does stop at stations to receive and unload passengers, but that is not its sole purpose there, it receives orders, mail and express, frequently takes water and coal, and doubtless at many stations neither receives or unloads passengers, it stops there in readiness to serve the public. While appellees admitted that the passenger equipment is chiefly in line service, yet Exhibit 8 showing division of operating expenses for the two months of November and December, 1913, show passenger car repairs renewals and depreciation amounted to $7,352.21, of which $4,774.53 was charged to line and $2,577.68 to terminal. Nearly one third goes to terminal for this service. The passengers on the train in many instances receive much service directly from this stop. At times they get off and send telegrams, and use the station facilities, including dining and lunch rooms, during the stop. As the state passengers as a rule have two terminals

in the state and the interstate only one, and frequently none in the state, necessarily the more expense put on the terminal, the more that is charged to the state. To be accurate, 74.27 per cent of it goes against the intrastate passenger (Ex. 16, R. p. 2020).

It is stated on Page 9 that the predominant terminal service of the freight car is the time in which it sets on the industry tracks for unloading and loading; this is but another way of incurring, under the provisions of the Formula, additional expenses for terminal services. The car set out on an industry track will probably take a day for loading or unloading, and for the convenience of the railroad or the shipper it may be there several days; if for the convenience of the shipper he will pay for it in demurrage charges; if for the convenience of the railroad it stays there for its benefit and is being charged to terminal under the provisions of this formula whereby the state traffic will be charged more than double the inter-state traffic for it. These with hundreds of others, illustrate the wrongful distinction drawn between line and terminal where none exists.

8. It is stated at page 14, in all previous Rate Cases yard and station expenses as grouped by the Interstate Commerce Commission were considered terminal and other expenses in the Transportation group were considered line. In no rate cases heretofore determined in any Court so far as I am able to discover has this distinction of line and terminal ever been considered. It is an invention of the expert railroad accountants who prepared this Formula for the purpose of this and other litigation with Arkansas and other states.

9. On page 15 it is stated that maintenance of equipment expenses has heretofore been treated as line expenses. It is enough to repeat that no such distinction has heretofore been made. Next it is said that in the Iron Mountain case estimated allowances as between local and through freight trains were made to compensate for the more frequent stopping and starting in terminal service of the local freight, and other allowances are referred to. In the formula used in that case by the State there were certain assumed allowances, based upon evidence, as to the greater number of stops of a local train over a through train, in order to

reach the comparative expenses of the local and through trains. There was no question presented there of terminal service as developed in this formula. Extra allowance for locomotives in that case was to compensate for the additional wear of the locomotive on the track. These allowances had nothing whatever to do with terminal or line expenses as defined in this formula. There was an earnest effort there to get the real facts of railroad transportation and not to make fictitious distinctions resulting in abnormal charges against one class of traffic.

10. It is stated on pages 15 and 16 that local freight trains are more expensive to operate per mile run than through freight trains and are more expensive to operate per ton mile of their contents than through freight trains. Accepting this as true, then the Formula has utterly failed to do justice to the situation. As stated by Counsel at page 9 the engine of the local train is used as a switch engine for setting out, switching and picking up cars, at way-stations. This is but one of the many uses of the local train for the accommodation of the through freight traffic as well as that which is carried on it. The local freight train must wait on all other trains, and for that reason it is longer on the road for a given distance, as set out at page 15. It has more work to do for the common service than the through freight trains, and for that reason as stated on page 15 has a larger crew. It is also there stated that it is more lightly loaded and must necessarily be in order to accomplish the functions assigned to it. The economical management of freight train service requires the putting into solid trains of as many cars as possible, to run from division point to division point, perishable freight first and so on down the order. The local freight train carries less than carload shipments to intermediate points between division points, carries much of the Company material, picks up and sets out loaded and empty cars indiscriminately for state and interstate service, and for the convenience of the through trains, and for the more rapid movement of the through trains and for the better service of the railroad. Most of these matters are well understood, some of them thoroughly explained by Mr. Frates, one of the Superintendents of the 'Frisco Road, who testified fully as to the handling of the freight service. It is not fair to charge the local freight train with all its own expenses and distribute that expense per ton mile between

the state and inter-state load on it, because much of this expense is incurred for the benefit of the freight carried on the through trains. To illustrate, suppose that the wages of a crew of a local freight for a day's work were $20.00, and from delays in waiting for freight and passenger trains and in setting out and picking up cars for the benefit of through trains, overtime accrued to the crew and their day's wages were $30.00 instead of $20.00. This additional ten dollars, under the workings of this Formula, would be charged solely to the freight carried by the local train and divided between State and interstate, according to the respective ton miles of each; the extra ten dollars would therefore be distributed over the contents of that train, whereas, it should be distributed against the other freight trains and a part of it against the passenger trains which caused some of the delay. The local freight train is aptly called the "*Beast of Burden*" of the railroad; it serves the entire road, it carries much of the Company material, it carries many of the empty cars which are set out at stations and industry tracks, it picks them up when loaded and carries them to through trains. It carries the cotton to the compress points where it is compressed and shipped to the seaports as interstate traffic from the point of origin to its point of destination. It hauls the logs from the logging roads and tramways to the saw mill, for the convenience of the through train which will ultimately carry off the finished lumber. It hauls coal cars from the coal mines to the nearest division point where they are put in the through coal trains, and yet the expense of this train under the provisions of this formula is confined solely to the freight carried upon it which fact alone is enough to damn the fairness of the formula.

11. At page 17 it is stated that the various units used in the formula are natural and appropriate factors for the purpose for which each is used; and again at page 20 after recapitulating only 27 of these units, it is stated the use of these units practically eliminates the necessity of opinion evidence. Each one of these units is dependent upon opinion evidence as to its applicability to the purpose used. Many of them are in daily use for comparative statistical purposes, but none are in use as employed herein. Many of them are invented solely for the purpose of this litigation; and the co-ordination of one to the other is wholly dependent upon the opinions of the authors of the formula; for in-

stance, the factor to divide hundreds of thousands of dollars of common expenses of maintenance of way, engine ton mile, between freight and passenger, was never heard of in railroad accounting or statistics, 'till this formula was invented and it is not today used by any railroad for any purpose other than litigation. The car foot mile is another factor never heard of in practical railroad operation, something similar to it was advanced before a Congressional Committee which was investigating the prices to be paid the railroads for carrying mail a good many years ago. The railroads fought it very vigorously. The use of the general managers' percentages for dividing the equipment repairs between line and terminal is dependent wholly upon the opinion of Mr. Symons. The applicability of many of the other units are dependent upon the time studies made by employees and none of these employes testified to the truthfulness of the time studies made by them. They made out their reports on the blanks furnished them for the purpose of this suit, sent them in to Mr. Hamilton's office and he compiled them and testified that he thought they had been accurately made, according to his instructions, and that is all of the evidence that was introduced in regard to the time studies, by which it is proposed to divide at least fifty per cent of the expenses of the railroad company, and yet it is said that the use of these units eliminates the necessity of opinion evidence!

12. An argument is made on page 22 against the apportionment of freight terminal expenses on the basis of the ton miles; this is setting up a straw man and knocking him down. The terminal expenses as worked out in this formula are swollen beyond recognition, but no one discusses their distribution on the ton mile basis. A fallacious argument made in discussing this is that as the state ton proceeds about one-fifth of the distance of the interstate ton and is handled ordinarily twice for once of the interstate, that there would be ten terminal handlings for each intra-state ton to one of the interstate, and therefore the division of this terminal expenses on the ton mile basis would be to charge ten times too much to the interstate. The question of terminal expenses or line expenses cannot be worked out on average hauls. The formula claims that it prescribes a method of ascertaining every dollar of terminal expense and every dollar of line

expense. If that be true, the length of the haul has no relation to the expenses as ascertained under the formula. It purports to get the actual terminal expenses and the actual tons using the terminal, and the actual passengers using the terminal, and if it accomplishes what it purports to accomplish, then the length of the haul is not a factor for consideration.

13. It is stated at page 23 that the application of the formula has practically eliminated the necessity of that character of expert evidence which was frequently used in former rate cases. In lieu of that class of expert testimony is introduced another class of expert testimony. The station agents are made experts as to the division of the time of themselves and of the employees in the station between freight and passenger, express, United States mail, and telegraph. (See exhibit 2K). Said experts in this case did not go on the stand as witnesses to express their opinions as to how such divisions were made and subject themselves to cross-examination. They simply made out their reports, sent them to Mr. Hamilton's office and he did the rest. Another class of experts was the switch engine foremen. They had to divide the work of their engines and crews between making up and breaking up trains, handling cars for icing, handling cars for loading and unloading, at station yards, switching cars to and from connecting lines, handling cars loaded out of switching limits, for unloading within switching limits, handling freight cars to and from rip tracks, and all passenger switching; and divide the time in to one-half hour periods, pursuant to exhibit 2 I; and none of them went upon the stand and explained how he had done this work. They simply made their reports to Mr. Hamilton, and he did the rest. Then the conductors of trains, freight and passenger, had to be experts on deciding, as shown in Exhibit 2H, the total elapsed time of each stop, the time on account of train operations, and the balance of the stop for station service and switching, and terminal delays and other causes, as well as to give statistical information as to the hour and minute of arrival and departure. This isn't the only class of expert testimony in this case; it is admitted at page 23 that in one instance, that of equipment maintenance expenses, must be divided on experience and judgment. This is about

one-fifth of the total expenses of the railroad and it is divided between line and terminal on the experience and opinion of Mr. Symons, supporting the general managers' percentages. The general managers did not appear. Mr. Symons did go upon the witness stand and give the faith that was in him and he was cross-examined. His testimony has been discussed fully in previous briefs and particularly in the reply brief, pages 12-16. It is the same class of testimony that was given in the other rate cases by very eminent railroad officials, estimating or guessing at percentages of extra cost of state over interstate business. It is merely opinion based on railroad experience, and this Court, speaking through Mr. Justice Hughes, said it was an insufficient basis upon which to invalidate a system of rates promulgated by a state. This is not the only class of expert testimony in lieu of the eliminated experts referred to. The engine ton mile is based wholly upon the opinion of Mr. Hamilton and Mr. Nay, both of them are accountants and not experienced in engineering or transportation. These are not the only expert witnesses in lieu of the eliminated ones; the formula itself rests upon nothing but expert opinion, its authors were five bright, shrewd accountants, preparing a formula for the purpose of their roads carrying on litigation with the various States over their rates. This subject is discussed in the first brief (pages 49-60).

14. At page 27 it is stated, generally speaking, from the beginning of rate litigation in 1907 train expenses were treated as line, station expenses were treated as terminal, and yard expenses according to use. This is the first rate case making use of these distinctions. On page 28 it is said recognition of the greater terminal expenses incurred by the local trains was attempted to be given effect by the addition of arbitrary percentages of the cost of transportation of local over through trains per movement unit. The Iron Mountain case is instanced, and it is stated that the State divided maintenance of freight cars between local and through service by first assigning 21.5 per cent of the total freight car repairs to stopping and staring at way stations, and 13.5 per cent for terminal handlings. Then it is stated that for the purpose of equating between local and through service the way station stopping and starting percentage of the local

train was multiplied by 4 and the terminal handling per centage by 2, assuming that there was as much as four way station stops of cars on local trains to one of cars on through trains, and that each car on the local train received twice as many terminal handlings as each car on the through train. The processes referred to and percentages mentioned in the Iron Mountain case were for a totally different purpose than is stated. In that case there was much testimony adduced by the Railroad Company to the effect that the intra-state traffic, particularly freight traffic, was much more expensive than interstate owing to the alleged theory that the local train was largely composed of intrastate freight. In order to meet this contention the state caused an analysis to be made for certain periods selected by the Railroad Company for tests, of the expenses and consists of the local and through trains. Where there was additional service calling for additional expenses of the local train, the extent of it was ascertained and translated into actual figures representing it. As the local train started and stopped more frequently than the through train, an estimate, based on testimony was made of them. Wellington, an accepted authority on railroad economics, allocated the contributing causes of equipment repairs, and his table was used. One of the principal causes was starting and stopping, and as the local train made more stops than the through train an allowance was made covering the additional stops so as to bring them on a parity for this contributing cause. The other percentages added to the local train and the locomotives were based on similar principles and none of them had the remotest bearing on the line and terminal division as promuglated in this formula. At pages 30 and 31 reference is made to the decision of the Oklahoma Corporation Commission, and excerpts taken from its opinion, seeking to justify the definition of terminal in this formula. The Oklahoma Corporation Commission made an earnest effort to separate the expenses between state and interstate traffic. It adopted many of the provisions of the Arkansas Formula and created numerous divisions of its own, and the excerpts quoted only refer to one phase of the plan worked out by that Commission. Take the plan as a whole and it is radically different in principle and in detail from the Formula promulgated by the railroad in this case.

15. At page 68 it is stated that the evidence of Mr. Hamilton in regard to the test period being a normal period was wholly uncontradicted and the defendants did not attempt to controvert it or produce any evidence on that point. Mr. Hamilton only introduced his normality exhibits and expressed his opinion that they proved normality of the periods, but the State has pointed out in its previous briefs that these exhibits destroyed the alleged normality of the periods in question; the variations shown are too wide to permit one to represent the other period. The State supplemented these exhibits with others giving more fully the variations and prepared a series of exhibits demonstrating that neither the period of inquiry in 1907 nor the two test months in 1913 were representative of the operating conditions of the road for a series of years. In order to prove this these exhibits bring the period of enquiry to a normal average. All this has been discussed in previous briefs and it is passing strange that such a statement is to be now found in the brief.

16. At page 70 it is said that all of the records of the railroad company including the calculations and detail work it prepared in connection with the tests as well as the regular records were submitted to and checked by the State's accountants extending over a period of several months, and that no errors of any magnitude or having any material effect on the results were developed by them; we respectfully refer the Court to Exhibits R. S. U. V. W. and X, each of which made corrections of specific errors, most if not all of which were admitted by Mr. Hamilton as heretofore pointed out, pages 25-30 of the first brief.

17. At page 73 it is said that in the brief for the State in the first Arkansas Rate Case it was stated, from the original record in Smythe vs. Ames, 169 U. S., 466, the test period in that case was two months. While this is a statement outside the record and a collateral matter, yet it is well to examine the accuracy of it. On pages 79-83 of the brief referred to is an analysis of the facts in Smythe vs. Ames, taken from the record; the testimony of Mr. Randall, ticket auditor for the Burlington & Missouri Railroad Company, was reviewed. He had made his calculations for the whole business for the year 1892 in Nebraska by taking the business of June and September and finding the whole busi-

ness of these months and ascertaining the intrastate business for these months, which was 21.21 per cent of the whole earnings. He applied this percentage to the whole year to get the intra-state earnings of the year; and this percentage was also applied to the expenses in order to get the intra-state expenses for the year; he used the revenue basis. It was stated that Mr. Randall was the only witness making his calculations on the revenue basis, and the basis used by the other roads was set out. It was also shown that Randall's revenue theory and his two months test were not used by either Judge Brewer in deciding the case or by this Court in the opinion rendered by it. The case was decided upon the evidence of Mr. Dillworth, a witness for the state.

18. On page 87 is an explanation of the car foot mile as used in the formula and it is said that this identical basis of apportionment was employed and approved by the State in the Iron Mountain case; this is another erroneous statement outside of the record; the record in that case shows that there was a space basis used to separate expense of express and baggage, etc., but this space basis was not used as the car foot mile is used in this Formula.

19. At page 101 it is stated in the former rate cases it has been considered by all parties that there is an excess cost incident to the conduct of intrastate business, both freight and passenger over interstate business; this is another erroneous statement outside of the record, in so far as it refers to the Arkansas Rate Cases. The State prepared exhibits in those cases showing what it contended was the minimum net income of each of the roads and the rate of return upon the property devoted to each class of business. Exhibit V. of the Allen record shows on the St. Louis Southwestern Railroad Company the state freight was making a net return upon the property devoted to that service of 13.99 per cent and the interstate freight 16 per cent, and the state passenger was making a net return of 5.76 per cent upon the property devoted to that service; while the interstate passenger was making .66 in the red, return on the property devoted to the interstate passenger traffic; a deficit of that amount. On the Iron Mountain Railroad, Exhibit N. showed the state freight was earning 10.93 per cent

while the interstate freight was earning 9.84 per cent and the state passenger was earning 5.21 per cent while the interstate passenger was in the red 3.44 per cent. Thus it is seen that the contention of the State was that the state passenger was earning a modest return on both roads and the interstate passenger business was losing on both roads, and that the state freight was earning more on the Iron Mountain than the interstate; while in the St. Louis Southwestern the interstate freight was earning more than the state freight business. This contention translated into figures is so consonant to the established facts in regard to the state and interstate passenger traffic that there can be little question of its truth. It was shown in the Allen record that the interstate passenger rate was less than the state passenger rate of 2 cents per mile, as in this case it is shown that during the four months on inquiry in 1907 while the state passenger rate of 2 cents per mile was in force the total earnings per mile from it was, in mills, 20.07, while the interstate rate, in mills, was 18.99. It is well established that the interstate passenger service carries a more expensive equipment, faster trains, dining and sleeper cars for the accommodation of its patrons, less space per car for the passengers than the crowded day coaches which largely carry the state traffic. As the railroads maintain voluntary rates less than the complained-of 2 cents per mile rate for their more expensive interstate business, they necessarily make less upon it than on the less expensive and more remunerative state business. The railroads' own figures, even under this Formula, shows the interstate passenger mile more expensive than intrastate for the line or haulage costs by 11.3%. (New brief, p. 201). But this is overcome by the excessive terminal costs piled up by the Formula.

This extra cost so far as attached to the state basis is mythical, when applied to the statistics in this case it becomes ridiculous. Exhibit 61 of the railroad on page 6 gives the return under the railroads' Formula applied to the agreed value for the total property for the four months in 1907 and shows a return on the interstate passenger of 7.05 per cent and a loss on the state passenger of $4630.31; while maintaining a rate less than the state rate per mile the interstate passengers had largely been hauled on expensive trains, 75 per cent of the Pullman passengers being inter-

state, and these trains carried diners and auxiliary cars and were not crowded as are the less expensive trains which haul the state passengers for the short haul which exists in Arkansas. The interstate revenue had been adjusted in this exhibit so as to compensate for the terminals outside of the state, and even after this is done according to the workings of this Formula the company is making a comfortable return on the interstate passenger traffic and losing money on the state passenger traffic, which costs less per passenger mile to haul by 11.3%.

On the freight side of it the ridiculousness, if possible, is even more apparent. The revenue per ton per mile for state freight is 24.79 mills, while the revenue per ton mile for interstate freight is 7.76 mills, more than three times as much per ton mile of the state than from the interstate, and in the calculation in the exhibit, interstate revenue has been equated by constructive mileage, deducting therefrom the cost of the terminals outside of the state and yet it works out that the interstate freight was making 5.61 per cent while the intrastate freight entailed a loss of $9308.59. In other words, after allowing for the extra cost of the terminals outside of the state in computing the revenue assigned to the state, the Formula works out a moderate rate of return on the interstate freight carried on a rate of less than one-third per ton mile than the intrastate and works out that the state freight causes a loss of nearly ten thousand dollars in the four months' period of inquiry. Exhibit 4 of the railroad company states that it proceeds on the assumption as indicated by the principle of the Formula that it costs no more per ton for a given terminal of a ton of intrastate freight than it does for a ton of interstate freight, and further that it costs no more for the haulage of a ton mile of intrastate freight than it does for a ton mile of interstate freight and the same assumption and process is followed in the passenger service; yet in the face of this principle and this assumption and after the revenue is diminished to compensate for the terminals outside of the state and the costs of those in the state counted the return on state business, both freight and passenger, is shown to be minus while the return on the interstate business, both freight and passenger, is shown to be compensatory.

This vagary of the Formula is due to carrying back to 1907 the mythical extra cost percentages found by the time studies, etc., in the test period of 1913, which was 15.43 per cent extra cost of state passenger, and 319.58 per cent extra cost of state freight.

19. On page 114 and going to page 122 is a repetition of pages 53-62 of the railroads first brief and pages 62-64 of the first brief are cut out and in lieu of them is a statement to the effect that the matters referred to in the discussion embrace all of the grounds of attack and that all errors discussed had been cured in Exhibit 27A, and that the matters discussed solely affected the four months' period in 1907. The statements contained in the old brief which are repeated here and which are emphasized, were completely answered from the record in the reply brief pages 29-30.

The answer is complete and contains references to the record which sustains every word of it, and instead of answering it the refuted statements are repeated and emphasized.

At page 252 there is an attempt made to answer one of the errors discussed, that was of the re-arrangement of the expenses according to the Interstate Commerce Commission Classification wherein it was contended that Mr. Hamilton carried this further than did Mr. Simson and the state was undercharged instead of overcharged; as Mr. Simson was only dealing with the assignment of expenses to the State and not dealing with their distribution under this Formula after they were set apart to the state, if Mr. Hamilton carried the calculation into the distribution within the state he did so under the Formula with its extra cost percentages, and that is but begging the question.

These same statements herein referred to are also repeated at pages 265 and 266.

20. At page 253 is an inference that the apportionment between various classes of traffic was done on the stipulated value. Again on page 271 reference is made to the stipulation value of the property devoted to the intra-state passenger business for the four years; there is no stipulation in the record as to the apportionment of the property between

passenger or freight, line or terminal; the stipulation is solely of the total value of the property in Arkansas and the various exhibits of the railroad company apportion that total value according to the workings of the formula. The stipulation does not reach to any apportionment whatsoever. (R. pp. 906-907.)

## ERRORS AS TO THE VARIOUS FORMULAS.

At pages 255-261 and elsewhere throughout the new brief there are erroneous statements of the various formulas that are used by the railroads. Exhibit 23 of the railroad company makes clear the various formulas that are used. This exhibit states (R. 2050) that in preparing the reports required by the Railroad Commissions in the states the company used a formula for the allocation of revenues and expenses to the state which was uniformly followed throughout all of these years. This is the Formula which has been designated the "Douglas Formula" and is the one that Mr. Simson worked with and he prepared some of his exhibits according to it, and some of them according to the formula known as Exhibit No. I in this case. Mr. Simson as an accountant expressed the opinion that this formula was a better one than Exhibit 1, for the purpose of assigning revenue and expenses to the state. In order to present both views of the question some of his exhibits were made upon one and some made upon the other, and it was stated in each which formula was used. In addition to that formula, it is stated in said exhibit that the railroad had another formula which it used uniformly throughout all of these years for the division of expenses between freight and passenger service for the purpose of operating comparisons. This formula Mr. Simson was not dealing with because he didn't attempt to make any division between passenger and freight. In order to ascertain the condition of the road in the preceeding years the railroad company equated the results found in the test period and in some instances in the year 1913, from the Douglas formula, and the other formulas dividing between freight and passenger; therefore, the equation rests upon the application of the new formula, Exhibit No. 1, to the two old formulas heretofore referred to.

## THE MATHEMATICAL DEMONSTRATION OF THE ERROR OF THE FORMULA.

At pages 60-68 of the original brief and pages 36-39 of the reply brief the facts in regard to the state's exhibits B, C, D, and E are fully set forth and in the new brief at pages 165-185 is the answer thereto of the railroad company. Exhibit A was an explanatory exhibit correcting the terminal and line units of the railroad's calculation. The present argument differs much from the original brief of the railroad at pages 134-148.

At page 165 it is said that the plaintiff's case is in no wise dependent upon the accuracy of the statements made by it in its exhibit 4 which were the basis of these exhibits of the State, but that the defendants' entire case rests upon the accuracy of these assumptions, because the State made no effort to segregate the intrastate traffic. This is a queer statement, as this attack upon the Formula is wholly independent of the many other attacks upon it.

On page 165 it is said that in arriving at the results the State considered a terminal service as being rendered by the Frisco Railroad to every ton of freight which crossed Red River either north or south bound, when the evidence unqualifiedly showed that no such service was rendered. It was said when the exhibits were filed that they contained an error due to the fact that there was not sufficient data to segregate the traffic which crossed Red River, as another Frisco corporation handled the traffic from Red River south without break in carriage. In order to show that this error was not material, Exhibits D and E were prepared, taking the entire line of the Frisco including the North Texas lines, and therefore did not contain the error which for the lack of data was in the other exhibits, which were confined to the Frisco corporation which is the party in this suit. In a later investigation by Mr. Simson, the State's accountant, he discovered the maximum extent of this error through investigation of the reports of the Texas lines to the Texas Railroad Commission and the Interstate Commerce Commission, and subtracted the expense representing the maximum amount of traffic which could have crossed Red River for the year 1913, which reduced the excessive cost from $5,751,-

142,86 to $5,368,896.45. This was fully explained in the testimony and the figures carefully examined by the railroad's accountants, and undisputed, and this matter set forth in the original brief at page 63, and yet in the face of these established facts the appellees make the statement referred to. It is said at page 170 of the new brief that the separate passenger intrastate and interstate terminal costs, in Arkansas, appearing in the plaintiff's exhibits were ascertained in careful and minute detail in the manner described; and then it is said the defendants did not question the accuracy with which these terminal costs were arrived at upon the bases described. This discussion shows that they were largely predicated upon Symons' evidence, distributing the line and terminal equipment expenses, and upon time studies which we have contended throughout were nothing but rank hearsay, and upon numerous bases under the formula which we contend are radically wrong. In the face of these contentions in the lower court and here, it is strange to understand why such a statement is made. On the same page it is stated that the contention of the plaintiff is that the allocation of expenses to terminal and line service in Arkansas has been made on sound and proper bases and is correct, and that the underlying reason of the result produced in the defendants' exhibits B, C, D and E is that the Arkansas terminal costs and line costs per unit of traffic are higher than the average of such cost for the railroad as a whole; and that the reason for this is found in the lighter density of traffic per mile of road in Arkansas, and the shorter haul in that state as compared with the average of the entire road. The most complete answer to these statements is to quote from the railroad's exhibit No. 4 (R. p. 1912): "This process assumes that the average terminal cost per ton handled in Arkansas, is closely reflective of the average cost per ton for similar service in the other states in which the St. Louis & San Francisco Railroad operates, and it further assumes that the average haulage cost per ton mile in Arkansas is closely reflective of the average haulage cost per ton mile in the other states in which the St. Louis & San Francisco Railroad operates." And again at page 3 of said Exhibit, "it is not considered that these assumptions are violent, for the reason that operating and traffic density conditions in Arkansas are thoroughly typical of such conditions upon the railroad as

a whole." Heretofore we have quoted Mr. Hamilton's testimony in support of these statements.

The railroad company gives traffic statistics of 1913, showing the density of passenger traffic in Arkansas in that year was 30 per cent less than the entire line and of the freight, 20 per cent less. Then it makes a labored argument that the density of traffic determines the unit of cost both of the terminal and line, and makes calculations reducing by 30 and 20 per cent, respectively, the expenses found by Mr. Simson in computing the operating expenses of the railroad according to the unit cost, line and terminal, as used by the railroad in exhibit 4. In other words, they take the percentage of density of traffic as the measure of the unit cost of a given state compared with the system as a whole and thereby seek to show that a lesser density in Arkansas for the year 1913 produced the excessive amount of expenses shown in Mr. Simson's exhibits over the actual expenses. It has heretofore been argued that the density of traffic does not furnish the yard stick with which to measure costs of operation; if it did so, rate litigation would be quite simple. Units of cost necessarily vary with labor conditions and with many other factors. The dense traffic in Missouri with high labor costs in St. Louis and Kansas City can easily produce higher terminal cost per ton than thin traffic in Alabama and Arkansas with cheap labor. The statement in the railroad's exhibit 4 is referring to the system as a whole, and not to it in particular states, and asserts that the conditions in Arkansas are closely reflective of the conditions in the system as a whole, and this was supported not only by Mr. Hamilton's opinion and experience, but by a special investigation he made to verify it. (See reply brief, pp. 38-39.) Finding this to be true the railroad used this unit cost, line and terminal, freight and passenger, to prorate the interstate revenue assigned to Arkansas, and that was based on allowance for terminal cost outside of Arkansas, which thereby reduced the amount assigned to Arkansas on account of the railroad having to pay this terminal cost outside of that state. If it was true for that purpose, and it made a smaller return on the whole business of the state than if a straight prorate of the interstate revenue had been made; certainly it is true, for the purpose of using this unit cost

in Arkansas to test the accuracy of the formula by applying it to the entire system, when the railroad company's exhibit and its chief accountant state that the traffic conditions in Arkansas were thoroughly typical of the conditions upon the railroad as a whole. Unfortunately for the argument made by the railroad company, that the density of traffic determines the cost, there is another exhibit put in the record by it, the accuracy of which is sworn to by Mr. Hamilton, which destroys this theory. It is exhibit 41 (Record page 2147). This gives the percentage of the entire line operating expenses assigned to Arkansas; for the four months ending December 31, 1907, the Arkansas proportion of the total expenses of the Frisco Railroad was 11.80 per cent. For the year 1913, the Arkansas proportion of the expenses of the entire line was 10.90 per cent, and for the two months test period, November and December, 1913, was 10.44. In round figures the expenses in Arkansas were one per cent more of the total expenses of the railroad in 1907 than they were in 1913. Whereas, in 1913 the density of passenger traffic in Arkansas was 30 per cent less than on the entire line and the density of the freight traffic was 19 or 20 per cent less; while in 1907 the density of freight traffic was 10 per cent less than in density on the entire line, and the passenger traffic was 19 per cent less in density than the passenger traffic on the entire line, (Record pages 884-896, and my original brief page 65). Therefore it is seen that for the year when the density of the Arkansas traffic was nearer that of the whole line, that is the year 1907, the expenses of Arkansas compared with the whole line were 1 per cent more than the year 1913 when the density of traffic, both passenger and freight was materially less than in 1907. In 1907 the freight traffic was within 10 per cent of the density of the traffic of the entire system, while in 1913 it was 20 per cent, a difference of 10 per cent in density; the passenger traffic in 1907 was within 19 per cent of the density of the passenger traffic of the entire line, but in 1913 it was 30 per cent less than the entire line, a difference of 11 per cent, and yet with this greater density in 1907, Arkansas incurred 11.80 per cent of the total expenses of the railroad; while with the lighter traffic of 1913 it only incurred 10.90 per cent of the total expenses of the road. Therefore this exhibit proves conclusively that the difference in density of traffic cannot

account for the excessive costs built up by using the units found under the provisions of the formula, as the line and terminal costs in Arkansas when applied to the whole system. In other words, density of traffic does not measure the cost of operation. That it has an effect upon it no one questions, but that it is a measure of it is a position wholly untenable, and not supported by any evidence, not heard of before in any rate cases and at war with well known operating conditions. According to the theory of the new brief and the calculations worked out to outset these exhibits, the operating expenses assigned to Arkansas in 1913 ought to be greater by 10 per cent than in 1907, whereas in fact they are 1 per cent less.

On pages 178-179 is again contained the statement of the first brief that the terminal costs in St. Louis referred to by Mr. Hamilton were of less than carload freight; this statement was refuted by quoting in full Mr. Hamiltons testimony upon that subject at pages 38-39 of the reply brief.

It is contended at page 179 that the statements in Exhibit 4, and Mr. Hamilton's testimony supporting them cannot change the facts. It has not yet been shown that they were not true. Mr. Hamilton merely made an argument in his rebuttal testimony on the general effect of density of traffic, and gave a few illustrations of terminal expenses at certain towns in Arkansas, but this was not answering the proposition relied upon by the railroad company in computing the cost of terminal expenses outside of Arkansas and sustained as true by Mr. Hamilton's testimony and his investigations.

Next it is attempted to answer the force of the calculations in exhibits B, C. D and E by asserting that the short haul in Arkansas incurs more terminal costs than the long haul. The hauls in other states are not in evidence, but there is no reason to believe, so far as this record goes, that they are longer than they are in Arkansas. This calculation is not dependent upon the length of the haul, so it doesn't enter into the subject at all. The tests made to carry out the provisions of the Formula purport to count all the line expenses, and all of the terminal expenses, no matter where incurred, of every kind, character and description, and put them down, and it matters not what caused them, short haul or what not. Mr. Hamilton testified that the tests accu-

rately counted up all of the terminal costs in Arkansas, and all of the line costs in Arkansas, and accurately set them down. The total sums of each are made up according to the theory of the formula for each service rendered, and it makes no difference whether that service was rendered on a long haul or a short haul, since the expense was incurred and is set down either on the line side or the terminal side. This matter is explained fully in Mr. Simson's testimony. While it doesn't need any explanation, yet as constant iteration of the fallacy may have some effect it is well to have the point clearly brought out and this quotation from Mr. Simson's testimony is a complete answer to it (Record pp. 898-899):

"Q. As I understand this formula, and the testimony of Mr. Hamilton and Mr. Nay in explaining it, they have gathered up those terminal costs everywhere that they touched, not only at the yards and the stations, but everywhere else that an expense occurs which is terminal in its nature; that is originating and delivering freight and its incident they have gathered up into the total terminal costs. That is the way you understand it, is it not?

"A. Yes, sir.

"Q. When those elements of expense, either what they made and occurring at any place on the line of the railroad which from their nature are properly attributable to terminal, are segregated from the line and are set up as terminal costs, has that expense any relation whatsoever to the haulage of the freight that moves between any given terminal?

"A. As a general matter of transportation it is one department of it. As a matter of determining the amount of the haulage costs, no.

"Q. Of course, it would make a big difference to the railroad how far that freight is hauled and how that expense is spread over the results of the revenue, I presume, will it not?

"A. Yes. The haulage has to absorb the terminal cost because the rate is for transportation between the two points, which includes the terminal expense.

"Q. That is a separate proposition, though, entirely, from what you based your exhibits upon, is it not?

"A. Yes, sir.

"Q. I have written down hastily a little rough example here and I want to see if that meets the situation here: Suppose a ton of freight moves 25 miles and has two terminals, of course with a cost of 31 cents for each: That would be a total terminal cost of 62 cents. This haulage cost is approximately 4½ mills, is it not?

"A. Yes, 4.65.

Q. Call it 4½, for each mile: For 25 miles that would make 12 cents haulage cost, or a total of 74 cents as the expenses on that ton of freight. Suppose the rate for the haul of that ton was $1.00, or rather, the revenue ton rate was $1.00, that would give a profit of 26 cents over the operating expenses?

"A. Yes, sir.

"Q. Suppose that freight was hauled 100 miles. For the same ton of freight, or a silimar ton of freight, your terminal costs would be 31 cents at each end, or 62 cents; the haulage cost would be 45 cents ,or a total of $1.07. If the revenue was the same you would lose 7 cents on that, but as a general proposition the rate increases with the distance, but not in proportion to the distance, and we will assume, say, that the rate on that would be $2.00, although the haul was four times as long. That would leave a profit of 93 cents on that particular shipment?

"A. Yes, sir.

"Q. Does that example illustrate the relation of terminal and haulage cost, and the revenue that is involved in it?

"A. Yes, exactly.

"Q. Then how can the long or short haul enter into this question of terminal cost at all if this example were illustrative?

"A. There is no necessary relation between haulage and terminals. The only place where the length of the haul enters into it is that the haul must eventually, through the revenue, absorb or compensate for the terminal expense. The rates are built to cover the transportation between the two points, which includes the terminal expense.

"Q. If the rate does not absorb it and the haulage cost they lose money?

"A. Yes, sir.

"Q. If it does absorb it it is profit and they make money?

"A. Yes, sir."

It is said at page 185 that the defendants had ample opportunity to investigate and did investigate the Arkansas line and terminal expenses and could find no fault therein. They certainly did find some fault with Mr. Symons, who entered largely in making up these expenses; they found some fault with the time studies, which represent at least 50 per cent of it, and they found some fault with this formula which attempts to run an arbitrary line between all expenses most of which are not susceptible of such division, and by so doing they accumulated a tremendous terminal expense, and correspondingly resulting in the so-called extra cost of state business. There was no better way to test out the formula than by a mathematical demonstration of its application according to the railroad's own statement of the facts. A primary question for consideration in a rate case is what the road is doing as a whole. When this is ascertained, then the work of separating the business between the state and interstate traffic follows. If it is found that one part of the traffic is profitable, and the other unprofitable, it may be worked out from such facts, whether the interstate rates are too high or too low, and whether the state rates are too high or too low, or both may be too high or both too low. In this case the railroad assigned all of the state revenue easily to the state, because that automatically attaches to the state in which it arises; the interstate revenue is made up of revenue derived from passengers and freight part of whose haul is within the given state. Much of it, in the case of the Frisco, was business passing through a corner of the state, trans-state business. In order to properly assign this revenue to the state as the railroad said it should be assigned, there was worked out a system of equivalent mileage to compensate for the expenses of the terminals outside of the state, by translating these expenses into haulage expenses and adding a constructive haul to the actual haul; in that way the actual revenue which was due to the State, after paying the expenses of the outside terminals, was assigned to the state. In order to do this the terminal and line costs

outside of the state must be ascertained. By actual test the railroad only ascertained these in Arkansas, and the railroad asserted that those units of cost ascertained in Arkansas were closely reflective of those throughout the system, as density of traffic and operating conditions in Arkansas were typical of the system as a whole. This was supported by the testimony of Mr. Hamilton to the same effect and also by investigation made by him to confirm his opinion. Mr. Nay testified that if this was true then application of the unit costs, line and terminal, to the entire traffic of the road would produce the actual operating expenses; of course this is but another way of saying 2 and 2 added together make 4. Having the sanction of such a great accountant as Mr. Nay that the actual operating expenses could be found in this way, Mr. Simson applied these cost units to the actual traffic of the railroad, and found as shown in these exhibits an excess of approximately $5,000,000.00 a year more than the actual operating expenses; from the railroad Exhibit 4 and Mr. Hamilton's and Mr. Nay's testimony it should have been actually the same. This necessarily means that the unit costs worked out in Arkansas are excessive or else that the unit costs in Arkansas are actually more than upon the entire system. If the second alternative is true then the assignment of interstate revenue to Arkansas is wrong and it should to the extent of the error in these costs units applied to the system, be more than it is, and the return upon the whole business in the state should be more than shown in the railroads exhibits, and still greater after the corrections made by the defendants' exhibits of the errors in the plaintiff's. If the first alternative is true and the costs worked out under this formula are excessive, at the rate of $5,000,000.00 per year, it demonstrates mathematically that the processes of the formula are wrong. This is the real truth of the case. There is no reason shown in the testimony to destroy the force of the statements in exhibit 4, and the testimony of Mr. Hamilton in support thereof. The statistics in exhibit 41 show that density of traffic does not measure operating expenses. When the density of traffic was only 10 per cent in Arkansas, less than the entire system, on freight, and 19 per cent less on passenger, Arkansas' proportion of the entire expenses is 11.80 per cent of the whole, but when the density of traffic is 20 per cent and 30 per cent less, respec-

tively, the proportion of expenses incurred in Arkansas to the entire system is only 10.90 per cent for the year; and for the test months, 10.44 per cent.

The railroad's only answer to these exhibits is to stulify their previous exhibits and Mr. Hamilton's testimony and it has failed to do so.

The acid test was put to the railroads' statements in Exhibit 4, and the terminal costs and line costs as worked out under this formula, and the acid destroyed the formula.

## ENGINE TON MILE.

At Pages 124-125 of the new brief an extract is given from Wellington's work on "The Economic Theory of the Location of Railways." Heretofore this work of Wellington's has been much derided by the railroads, as antiquated; the substance of this statement is that the locomotive causes a far greater portion of the wear, how much is not positively known, but it is asserted from one half to three-fourths. Mr. Hamilton stated that the maintenance of way expenses were caused chiefly from elemental causes, and that the cost of maintenance due to the train using the track, was variously estimated from 10 to 25 per cent, (Record page 109-110), therefore, according to this theory the engine represents one half of 10 per cent of the expenses or one half of 25 per cent of the expense. The engine, therefore, does represent something, but the engine ton mile does not, it is like a Confederate note, "Representing nothing on God's earth now, and naught in the waters below it." It is the weight of the engine multiplied by the miles it runs, and a passenger engine hauling five or six cars, and a freight engine hauling forty cars over the same division, one at the rate of 40 miles an hour, and the other at the rate of 10 miles an hour, if the engines are of the same weight, will make exactly the same engine ton miles. It does not represent the speed of the train, weight of the train, service rendered, in fact, nothing except a fortunate percentage (for the railroads), against passenger service. Exhibit 40 shows that of the passenger business 43.77 per cent is state, while of the freight business, only 3.65 per cent is state. At page 131 is a quotation from Mr. Symons on tractive power. He

says starting at a speed of five miles per hour, the engine has a net tractive power of 23,000 pounds, while at 40 miles per hour the engine has a net tractive power of only 11,000 pounds. The engine ton mile, therefore, disregarding speed does not represent tractive power. Mr. Hamilton and Mr. Nay said it represented the load behind the engine, but Mr. Mayer's exhibit C C explodes that theory completely. This exhibit is summarized at page 80 of my original brief and shows actual conditions on the 'Frisco road. A few illustrations explain it. During the four months of 1907 the east bound freight trains carried from 75 to 97 per cent of their rating, while the west bound carried from 42 to 88 per cent of the rating; yet exactly the same engine ton miles was made whether the train was loaded 97 per cent of the engine rating or only 42 per cent. This engine ton mile of the freight trains was set up against the engine ton mile of the passenger trains, which service is fairly constant, but even there, are factors rendering it useless for comparative purposes. To illustrate, train No. 4, from Fort Smith to Monett, a distance of 134 miles, carries six cars and makes 804 car miles while its companion train in the opposite direction carries seven cars and makes 938 miles each trip, and the engines being the same, and mileage the same, the engine ton miles are identical. Many other illustrations of its operation are found, (Record page 559-560). These are established facts and Mr. Mayer testified from the records, and whatever criticism Counsel may level against Mr. Mayer's opinions, his exhibits and statistics, after the most searching scrutiny, were unattacked and stand established.

The emphatic repudiation of the engine ton mile basis, by the Interstate Commerce Commission, has driven the appellees into showing that other bases produced substantially the same result, and they make various comparisons with other bases. First they take up a report of a committee of the American Railway Engineering Association, which recommended the equivalent ton mile. This body is not likely to get out a report harmful to the railroads. Mr. Mayer also offered in the course of that discussion a minority report from that Committee, submitting a different basis, neither of these reports were acted upon by the Association, and no witness testified sustaining either. No value can be attached to these tentative individual theories. Next is an attempt

to resuscitate the train mile basis; the Interstate Commerce Commission rejected it along with the engine ton mile basis. At page 136 it is stated: "On the authority of Judge Hill's brief in the first Arkansas Rate Case, Page 81, the revenue train mile was the basis used by the Union Pacific Railway Company in the apportionment of maintenance of way expenses, in the case of Smythe vs. Ames 169, U. S. 466." In the brief referred to is a summary of the testimony of Mr. Randall of the Burlington & Missouri Railroad and Mr. Van Kuran of the Union Pacific. Mr. Randall stated that no accurate apportionment could be made between freight and passenger of the maintenance of way expenses, and on the experience of railroad men, he divided it 70 per cent freight and 30 per cent passenger; and Mr. Van Kuran said, that he divided it on the train mile basis, producing 70 per cent freight and 30 per cent passenger. As the percentages reached, one from an estimate and the other from train miles, were such as are generally accepted by railroad men as the true relation between freight and passenger, this percentage between freight and passenger was not a subject of controversy. In this case the engine ton mile and the train mile produce practically 50 per cent each to freight and passenger. On page 137 it is said, "The revenue train mile was used in the first Arkansas Rate Case by the carriers, and was accepted and used by the state." In the brief of the Counsel for the state referred to, in this Court on pages 261-281 is an argument against the train mile basis and it is stated that the railroads had used it, and the state only began its work from that apportionment, but it never accepted it as correct; and the argument in the brief was to prove that it was radically wrong, and unfairly burdensome to the state. This statement is outside of the record, but is on parity with many of the statements regarding matters in the record. On pages 137-138 it is said that perhaps the most terse and concise statement for the reason for the use of the train mile basis for the apportionment of these expenses is found in the evidence of Mr. Ludlam, one of the State's experts in the first Arkansas case. A quotation from his testimony is given; it is to the effect that the maintenance of way expenses should be distributed against the use which is made of the way which is in running trains. It is not stated in the excerpt the manner in which apportionment should be made against the train. Mr. Ludlam was testifying in sup-

port of a formula which apportioned this expense between local and through freight trains on the car mile basis and on the passenger side between Pullman, coaches, baggage and express and mail cars on the space used by each. These expenses may be apportioned against the trains in many ways: It is contended here by Mr. Nay and Mr. Hamilton that the engine ton mile apportioned it against the train. It may be apportioned as it was in the West Virginia Case on the engine miles. It may be apportioned as it was in the Arkansas case on the car miles, or it may be apportioned as is done in this case, for part of the expenses on the car foot mile; or it may be apportioned as was done by the Interstate Commerce Commission on the basis of direct charges of certain accounts reflective of its use by the trains. Each of these bases more or less directly apportions it to the train, and the question is which is the true factor. There is absolutely nothing in Mr. Ludlam's statement that indicates support of the train mile as that factor.

Next is the comparison with the engine basis used in the West Virginia case. As most of the freight of the Norfolk & Western railroad was hauled by two engines, this basis was used and apparently acquiesced in. There is no evidence of double headers on freight trains, on the 'Frisco road in Arkansas. In the West Virginia case where the freight trains usually had two engines, the relation was approximately the same between freight and passenger, as in this case, where the freight trains do not have double-headers. Such result conclusively proves that a basis on a road using single locomotives for the freight trains which produces the same results as another basis on a road using two locomotives—especially if it be true that locomotives did one half the damage—is manifestly the wrong basis. Next, is a comparison with a tentative basis suggested by some employee of the Interstate Commerce Commission introduced by Mr. Mayer in his discussion of the subject, as exhibit D. This basis was not approved by Mr. Mayer or anyone else and since the Interstate Commerce Commission has adopted another basis, no value can attach to this one.

Next is a comparison with the basis adopted, at least till a better one is found, by the Interstate Commerce Commission, called the direct charge basis, wherein accounts 80 to 89 are used as the basis of apportionment. It is not considered necessary to attempt to answer the argument

against this basis made by the Appellees. The report of the case where this basis was adopted shows that one of the learned Counsel for the Railroad in this case was Counsel for the Santa Fe railroad, supporting the engine ton mile as the basis in that case. Therefore, it is apparent that this argument has been weighed and found wanting by the Commission. A comparison of the result of the two bases shown on page 150 is called to your attention. This was made by finding the percentage of increase of the intrastate freight and the percentage of decrease assigned to the Intra-state passenger, and applying these percentages to the fiscal year 1913, using the statistics in Exhibit 61. This increases expense assigned to state freight by $2,118.16, and decreases the amount assigned to state passenger $14,989.46. The methods of assignment to the state freight and state passenger, under the provisions of the formula uses the alleged extra cost percentages of 15.43 per cent against the state passenger and 319.58 per cent. against the state freight. The engine ton mile basis is one of the factors helping to produce this extra cost percentage against the state traffic. The provisions of the formula working to this result include the division between line and terminal, the time studies, based on hearsay testimony, the equipment repairs division between line and terminal based on Symons' evidence, and many other incongruities and errors referred to in the briefs of the state. It is impossible without recasting all of the exhibits to trace the extent of the error of using the engine ton mile as the basis for dividing each item of expenses, because each apportionment is used over and over again in the formula, and all of the expense of superintendence are apportioned on the basis of the expenses already located and the general expenses are apportioned the same way, and in many instances other accounts are assigned on preceeding accounts, including the previous errors. Messrs. Haskins and Sells have prepared a calculation simply substituting the direct charge basis for the engine ton mile basis, but not carried out throughout the formula. It is as follows:

Comparison of Engine Ton Mile Basis and Direct Charge Basis for Division of Common Expenses of Maintenance of Way for Two Months of November and December, 1913:

| | Engine Ton Mile As Shown in Exhibit 17 | Direct Charge Basis |
|---|---|---|
| Freight— | | |
| State | $ 51,487.55 | $ 52,287.82 |
| Interstate | 303,012.94 | 319,859.38 |
| Passenger— | | |
| State | 68,063.26 | 62,781.09 |
| Interstate | 86,626.01 | 77,847.72 |
| Mail and Express | 35,189.07 | 31,602.82 |
| | $544,378.83 | $544,378.83 |

This shows that the freight expenses are increased $17,646.71 for the two months' period, or at the rate of $105,880.26 per annum. According to Exhibit 40 the state freight bears 3.89 per cent of the increase. The statement shows that the passenger expenses decreased for the said two months $14,060.46, or at the rate of $84,362.76 per annum, and according to Exhibit 40, the state passenger business receives 40.55 per cent of this decrease. When this change is carried into all of the accounts, Superintendence, general expenses, and other assigned charges using this basis, it will be much magnified. The Interstate Commerce Commission has not finally accepted the direct charge basis, but indicated that the data used by it was insufficient to make a complete basis, but adopted it as preferable to the engine ton mile and the train mile, or any other basis suggested in that hearing. So far no basis has been found that will separate these expenses in such a way that the Court will be convinced that it is done with a fair degree of accuracy, and that the margin of error is insufficient to be ignored; certainly the most approved basis at this times is the direct charge used by the Interstate Commerce Commission, and the use of it is sufficient to demonstrate that the error of the engine ton mile is sufficiently great to upset all of the exhibits made by the railroad in this case, and leave the Court without sufficient data upon which to base a charge of confiscation, even if all the other provisions of the Formula should be accepted.

## THE AVERAGING EXHIBITS.

The exhibits of the state from H 1, to Z 1, consecutively, work out processes of averaging the conditions of the road during a series of years, and show an average condition for the period of inquiry of 1907, instead of testing the condition of the road by a four months' period in 1907, worked up through a test period of two months in 1913. These exhibits present the process from several view points, some using the old formula, and some the new. Pages 31-35 of the original brief gives a full statement of them, and pages 185-196 of the new brief is the railroad's response thereto, and your attention is invited to it. The first point of attack is, that the rates prevailing in 1907 did not prevail in the subsequent years, but in lieu thereof, there was a 3 cent passenger rate for part of the time and a 2½ cent passenger rate for part of the time and the Court tariff in lieu of the Commission tariff for the freight rates. In Exhibit 61 the railroad diminishes the actual return during these years by applying the enjoined rates to the traffic which actually moved during these years, on the theory that exactly the same traffic, both freight and passenger, would have moved under the enjoined rates which did move under the existing rates, no more, no less. Heretofore, this subject has been discussed at some length at pages 38-41 of the original brief and at pages 32-33 of the reply brief, and it will not be repeated. Suffice to say that the theory that exactly the same traffic would move on higher rates, and no more, which moves under lower rates, is inherently unsound, but for the purpose of this case it is not necessary to consider that question, because Mr. Simson made calculations on the results shown in Exhibits A A. and B B., which are income accounts of the road for the year 1913, after making corrections as shown in his various exhibits correcting errors in the railroad's exhibits, and basing one upon the old Formula and the other upon the new Formula. These exhibits show a return on all of the business in Arkansas under one Formula of 7.69 per cent. and under the other Formula of eight per cent. The railroad counsel called his attention to the diminution of the revenue as shown in Exhibit 61, by applying the enjoined rates in lieu of the existing rates, which produced the revenue shown, and he was asked to make a calculation showing the effect

by so applying the enjoined rates to the traffic moving under the rates existing during the several periods in these exhibits. The result of that calculation reduced the return under the one exhibit from 7.69 per cent to 6.9 per cent and under the other exhibit from eight per cent to 7.23 per cent. It must be borne in mind that these figures were dealing with the figures as made by the railroad company, except the corrections made by Mr. Simson, and before the averaging process was applied to any of the periods. Therefore, it is seen that the deduction of the revenue by applying the enjoined rates would have no material bearing on this case. The next attack on these exhibits is for not averaging as part of the operating expenses, taxes, rentals and hire of equipment, and also for not averaging property values. The Interstate Commerce Commission does not classify taxes, rentals and hire of equipment as operating expenses, and for that reason, presumably, the railroad company in its equating process carrying back the statistics discovered through time studies, of the test for the two months of 1913, to the four months of 1907, and intervening years, did not equate these items, but used the actual items of these accounts in each period to which the equation was carried. Mr. Simson's exhibits proceeded on the same plan and should have been made upon some plan as they were prepared so as to compare the one with the other, as well as to show the normal condition of the road through the series of years. When his attention was called to this, Mr. Simson said the hire of equipment, while not technically an operating expense, was so closely analagous to it, that it also should be equated or averaged, and he made a calculation including it in his averages, and the percentages of returns shown in his exhibits were not changed. Taxes and property values are not the subject of average or equation; Mr. Simson impolitely stated that such a theory was absurd. The property value for each year is fixed and when the return on that value is calculated it accounts for every dollar of the investment after paying the taxes, and rentals and hire of equipment, which is deducted before the return is made; and that return shows whether the investment is making a compensatory or a confiscatory income. Suppose, at the beginning of a series of years the property value was $10,000,000; after paying the operating expenses, rentals, taxes, and hire of equipment, the sum of $600,000 would be required as net

income to produce a six per cent return on the property value. Suppose at the end of the period the property value was 20 million dollars, then, after paying operating expenses, rentals, taxes and hire of equipment, it would require a net income of $1,200,000 to produce a six per cent return on the property. Suppose for each of these years, whether the property was ten millions or twenty millions, and the taxes a quarter of a million or a half a million, the net income produced over a six per cent return on the value of the property, that would demonstrate that the road was earning a compensatory return on its investment after all deductions had been made for taxes, rentals, hire of equipment, and operating expenses, and the net income applied to the investment. The averaging of the property values in the illustration made would require in the beginning of the period the earning of a return far more than adequate to pay a compensatory return on the actual value, while at the end of the period it would permit a return to be shown that was apparently compensatory, although inadequate to pay a compensatory return on the present value of the property. The next attack on these exhibits is stated at page 188, as follows: "The process applied by the defendant in determining the substitute revenues and the expenses, and the result secured thereunder are meaningless and misleading, for the rason that average conditions in respect to revenues and expenses on the entire line in any one year are not reflective of the conditions in Arkansas during that year, much less are the conditions, in respect to revenue and expenses on the entire line representing an average of five years, reflective of conditions in Arkansas during the four months ending December 31, 1907, which is the underlying principle of defendants' theory." When the railroad company began the introduction of testimony of the test months of 1913—as applicable to the conditions in 1907, the state objected. Mr. Hamilton testified that he had in the course of preparation exhibits to prove the similarity of the periods, and the Court on that statement let in the offered evidence. Before the exhibits referred to were introduced the appellees questioned Mr. Nay as to what similarity in operating conditions would justify the use of statistics of one period to determine the conditions in another. He gave six tests to determnie whether the conditions of one period were sufficiently similar to the conditions in another period to be used; and the

sixth tests stated by him at page 442, is the assigned expenses in proportion to the traffic, that is the proportion of Arkansas' expense of the total of the road. Subsequently Mr. Hamilton introduced these normality exhibits purporting to meet the tests prescribed by Mr. Nay. Exhibit 36 shows the ratio of Arkansas' earnings of the entire line, also earnings for the different periods, and exhibit 40 and 41 shows the Arkansas proportion of operating expenses and traffic compared with the entire line for the different periods. This theory of Mr. Nay and these exhibits of Mr. Hamilton were largely the basis of Mr. Simson's work and now, it is stated that such statistics of earnings and expenses of the entire line are not reflective of conditions in Arkansas during the year. Verily the Appellees are kept busy in brief and rebuttal testimony refuting their testimony in chief.

## THE TRAFFIC EXPENSES.

At pages 196-197 is an answer to the reply brief on this subject, it is asserted that because the interstate passenger haul is double the state passenger haul and the interstate freight haul three times the state freight haul that the traffic expenses are apportioned, in the one instance double and in the other instance treble against the interstate, and therefore the state should not complain. The point made is that a great volume of these expenses are outside agencies, like in New York, Philadelphia, and other cities, and expenses incurred in advertising the road. Surely such expenses cannot possibly be of use to the short haul intrastate traffic, but are incurred wholly for the purpose of obtaining the interstate traffic, which should be charged with such expenses. At page 197 again, Appellees go outside of the record to get support from the Arkansas Formula, but again make erroneous statements in regard thereto. It is said that the amount charged the state in this case was less than was charged in the Iron Mountain case, and on the "basis employed and approved by the state." In that case the basis employed by the railroads was the revenue basis and when the state made its Formula, as testified by the author of it, he was unable to obtain data to separate the traffic ex-expenses between state and interstate, as it should be done,

and without such data he used the division made by the railroad company, which he most heartily disapproved as inherently wrong for reasons explained by him. In the brief of the state in that case in this Court, (at pages 347, 405), this is shown.

## STIMULATION OF TRAFFIC.

At page 219 of the new brief is a chapter on stimulation of traffic. This subject has heretofore been discussed at pages 38-43 of the original brief, and at pages 32, 33 of the reply brief and only this additional thought will be added to what has heretofore been said. Exhibit 42 of the railroad company selected certain border towns and certain interior cities comparing the result of the two cent and the three cent passenger rate, for the purpose of showing that at border towns there was an unnatural stimulation of traffic, by re-buying for the purpose of securing the lower state rate, while at the interior points, sufficiently removed from the border, there was no incentive to the passengers reticketing there. These interior towns, and in most instances shown to be large towns, there was an increase of 28 to 33 per cent. during the two cent period over the three cent period, and Mr. Hamilton testified as stated in the appellee's brief at pages 221, that there was an increase in the intrastate passenger miles of 21 per cent and a falling off of interstate passenger revenue 14 per cent. These statistics conclusively prove that the traffic was stimulated by the two cent rate, the passenger miles increasing 21 per cent and a falling off of only 14 per cent. in revenue; and in the interior towns too far removed from the border to be affected by the rebuying proposition, the stimulus was from 28 to 33 per cent or almost equal to the percentage of decrease in the rate. Therefore, it is apparent that the diminution tables, which assume that the same amount of traffic moves, and no more, under the two cent, that does move under the three cent rate, is contradicted by the established facts put into the record by the railroad. It is another case of arguing against its own testimony.

## THE SO-CALLED SIMSON PERCENTAGES OF EQUIPMENT REPAIRS BETWEEN LINE AND TERMINAL.

At pages 151-161 of the new brief is a chapter on the apportionment of the equipment repairs, between line and terminal service, and it is an effort to make it appear that Mr. Simson, the accountant of the state, had prepared a basis for this apportionment, and contrasting his basis with the general managers' averages, supported by Symon's testimony. The whole argument is so misleading that it is thought that a statement of the facts would be useful. Mr. Simson introduced Exhibit F. and thus explained it:

"A. I had some curiosity to know how a distribution of maintenance of equipment repair items for locomotives, passenger cars, and freight and work equipment, compared with the Berry tables as shown in the proceedings of the Fifth Annual Convention of the American Railway Engineering and Maintenance of Way Association held in Chicago, March 15 to 17, 1904. I do not pretend to sustain the tables from any technical knowledge of engineering matters.

"I have taken those tables, and, as near, as the information there given would permit—and I think it is fairly close—have assigned to line and terminal the percentages of the maintenance, following the definition of line and terminal as given in the formula, Exhibit No. 1.

"I have in this exhibit quoted the full tables as shown in Mr. Berry's table. On page 2 of Exhibit F, I have shown the assignment of these percentages, which represent distribution of contributing causes, to line and terminal according to the best definition I could make of the terms employed. Time and exposure being applicable to both line and terminal has been apportioned between the two upon the basis of the percentages previously assigned; in other words, an overhead method, if you please. Again, on page 607 this occurred:

"Q. The next item that Berry has in his table is starting and stopping: How do you classify that, as line or terminal"?

A. "As terminal."

Q. "Is that entirely accurate?"

A. "No, there is starting and stopping for water, for coal, for passing, for train orders, and things of that sort, so that a part of that really should have been assigned to line, but I couldn't divide it."

Q. "The greater part of it, or a very large part of it, I presume you consider terminal?"

A. "In accordance with the definition of terminal in Exhibit No. 1."

Q. "So you assigned all of that to terminal, not being able to work out what part of that should go to line?"

A. "Yes, sir."

Then he takes up the difference in the figures of the two months' test period, November and December, 1913, of the assignments between the two tables, and shows that the Company's method produced an excessive amount to terminal over the Berry table method of $15,386.47, or twenty four and one-half percent. This is at the rate of $92,318.76 per annum. Mr. Simson was cross examined exhaustively with regard to this table; his cross examination on this subject begins at page 754, and continues to page 776. He stated over and over again as he had first stated in his direct examination, that he had no technical knowledge upon this subject whatsoever, did not purport to have, and that he had merely as an accountant, taken the Berry table and adapted it to the line and terminal division, so far as he could, as line and terminal was defined in the Formula. He stated time and again, that neither the Berry table nor the Wellington table showed any consideration of line and terminal as defined in the Formula, and gave him no indication as to how either Berry or Wellington, would have divided it, and that he was merely adapting the definitions of the Formula to this table. He stated several times that he did not have the data to make a complete separation between line and terminal as defined in the Formula. Sixteen per cent of the contributing causes of the Berry table was due to switching, Mr. Simson assigned all of that to terminal; of that he said that a material part would be due to line under the Formula, as switching in classification yards was defined therein as line. Twenty per cent of the contributing causes of freight car repairs was caused by starting and stopping, and all

of that was assigned to terminal; of that Mr. Simson said, a material part of it would be line under the Formula, on account of the stops, for water, fuel, passing trains, orders, etc., but there was no data to separate it and as he thought the major part of it was due to terminal he assigned it all to terminal, in the absence of other data. At page 774 he said:

"The sole value of the exhibit is a comparison of the results, the Berry table results being produced upon a consistent and like basis."

In face of this testimony and the only testimony on the subject, that this was a mere table to make a comparison, stated to be inaccurate, but of some value as indicating the difference in results between the two tables, appelleees have treated this table of Mr. Simson as a basis for an apportionment of equipment repairs between line and terminal, and made calculations on that theory. At page 160 is a statement showing the result of applying the so-called Simson basis in lieu of the basis of the companies' exhibits, and it shows a reduction of the deficit in state business from $30,-815.08 to $17,857.73. This is of course under the processes of the Formula applying the extra cost of 15.43 per cent passenger, and 319.58 per cent freight, of the state business and of course, contain all of the errors of engine ton mile, time studies, and excessive accumulation of expenses to terminals. Mr. Simson didn't offer this comparative table as a basis to divide equipment repairs, his testimony plainly so states, and yet the appellees are seriously treating it as if it were a basis presented by the state, for this purpose. The state has contended throughout that there could be no division as made in this Formula, between line and terminal, especially in regard to the equipment repairs, and to distort this comparative table into such a basis is totally without any foundation in the record. The table was prepared merely for the purpose of showing that even when many of the large items were wholly assigned to terminal, which did not apply wholly to terminal, yet by a process so favorable to the railroad a reduction in terminal expenses of $92,000.00 per annum was shown from the table used by the company. It was just another method of showing by collateral evidence the excessive apportionment of terminal expenses through the company's methods.

## THE STATE'S EXHIBITS Q, R, S, T, U, V, W, AND X.

The consideration of these exhibits in the new brief, pages 225-232, is largely repetition of argument heretofore made, and incorrect statements of their purport and effect. I cannot discuss them without repeating what has been said heretofore. At pages 25 to 30 of the original brief of the state, these exhibits and their purport is set forth, with record references to support the statements therein made. And in the reply brief at page 29, are also statements with record references, as to the purport of some of them discussed here. It is confidently submitted that the statements in the original brief and the reply brief are absolutely accurate statements from the record.

## EXHIBIT Y.

Beginning at page 232 is a repetition of the statements in the railroad's former brief beginning at page 160. Attention is called to the answer to that at page 39-40 of the reply brief.

## EXHIBITS AA AND BB.

Appellee's discussion of these exhibits at pages 234 to 236 is a repetition of pages 162-165 of the old brief. At page 235 is the statement that the defendants contend they show the return upon the entire business in Arkansas, of every class and character combined, including both intrastate and interstate, under the 3 cent passenger fare, state and interstate, and freight rates, state and interstate. The purpose of course of these exhibits was to show the return upon the entire business in the state, under the existing rates, but on the request of the railroad company Mr. Simson made a calculation showing just what the returns would be under both of these exhibits, if the railroad's theory of applying the diminution tables was applied. This testimony is given at pages 752-753 of the record and shows that the return on the property in Arkansas, by diminishing the revenue by applying the Commission's freight rate, and 2-cent passenger rate to the traffic which actually moved in Arkansas in 1913, would have been 6.9 per cent under Exhibit AA, and 7.23 per cent under exhibit BB.

## ERRORS IN ASSIGNMENT OF OPERATING EXPENSES TO ARKANSAS.

Beginning at page 265 is an argument to the effect that all errors in assignment of operating expenses to Arkansas were eliminated, except an error of $23,050.62, shown in defendant's exhibit G. This is an erroneous statement as demonstrated in the reply brief at page 29-30. There is an effort made in this argument to show how little this particular error affects the intrastate business. That is reasoning in a circle because the effect of the intrastate business is determined by the processes of the formula, involving the extra cost to state passenger of 15.43 per cent, and 319.58 per cent extra cost expenses to the state freight. In following chapters other errors in the assignment of operating expenses to the state will be discussed.

## LINE AND TERMINAL.

### The Impossibility of Dividing Expenses Between Line and Terminal.

So much is said in the new brief commendatory of the line and terminal distinction, that it is thought it can best be answered by a comprehensive consideration of the subject.

The evidence in this case discloses practically every phase of railroad operation. From that testimony these facts can well be deduced:

There are certain natural classifications of expenses, or, to put it in another way, certain expenses that automatically classify themselves. For instance, the expense of a freight train and the expense of a passenger train will automatically attach to the service rendered. The expense incident to the death of a passenger or the injury to a passenger will automatically attach as he is a state or an interstate passenger, determinable by his ticket; also, the injury or loss of freight will automatically attach to state or interstate according to the way bill of the freight lost or destroyed or damaged. There are certain other expenses which will naturally or automatically locate themselves to different lines of service,

such as station expenses and train expenses, as each are distinct services, and they arise from a body of employees working in different lines and under different superintendence. There may be some little crossing of lines in this service, but if so it is negligible and these services classify themselves, and the expense incident to them likewise classifies itself as falling to the particular class of service in which it originated. Likewise the yard expense is a distinct and separate expense. The service is performed by a different organization than that of either the train service or of the station service. It is a different class of work, distinctive in all respects unto itself. Out of it or into it will go all the activities of the train service, but when the line of the yard is crossed, a different class of service begins. For instance, a road locomotive engineer turns his engine over to a hostler as soon as he enters the yard, his service ends and the hostler's begin. There are other classes of expenses that are impossible of separation because they are in each and every class of railroad service, such as the General Expenses, typified in the salary of the president. His duties are supposed to reach either directly or indirectly into every ramification of railroad work. There are Traffic expenses, which are in a sense somewhat like General Expenses, some of them being distinctively freight and some distinctively passenger. Such as are distinctively of one class or another automatically allocate themselves, such as passenger agents or freight agents, whose duties consist in soliciting passenger or freight traffic respectively, but the great mass of this expense is an expense to obtain business for the road generally, to advertise its attractiveness, and the resources of its territory, in maintaining offices for the accommodation of its patrons, passenger or freight, state or interstate.

The Way is kept for all purposes of the railroad, passenger and freight, state and interstate. The business of the road is ultimately transacted on the Way; the work of the traffic officers, the general officers, the station forces, the yard forces, is all, in its last analysis, to obtain business to transport over the Way. The Way is essentially common to every phase of railroad operation.

Take these three items of expense, General Expenses, Traffic Expenses and Maintenance of the Way, and you have

a mass of expense that is insusceptible of division between Line and Terminal because there is no Line or Terminal work done by anyone in any of these three departments. To separate the expense of the Way, the expense of Traffic and the General Expense into Line and Terminal expenses, is to create an artificial distinction where none exists. Every piece of freight and every passenger has somewhere two terminals and each piece of freight and each passenger is transported over more or less of the line, but the expense of both of these terminals and the expense of the line service, using these terms as defined in the Formula, are so interwoven that they cannot be separated and should not be separated because they are not incurred separately as such for either. Take the president's services as an illustration and as typifying general expenses; he gives no attention to the origin or destination of freight in itself; he gives attention to the general operation of the road and this is but an incident to it. The roadbed is used for both line and terminal service and no one can draw a mark between parts of it used for one and parts used for the other. It is true that at stations certain portions may be set aside where freight or passengers originate or are received at their destination, but that is not exclusively for that purpore, for it is likewise used for line purposes, and on the road the service that is being rendered is to carry the passenger or freight to destination and is as much a part of the destinating expense as the actual receipt or delivery at a particular point. If a man is traveling as a passenger 10 miles, or traveling 100 miles, in each of those miles there is incurred a certain proportion of that expense of receiving him and of delivering him and that should be and is in proper railroad accounting spread over the total expense, and charged properly to each mile traveled by him; and likewise on the freight side, the same is true of the movement of tons of freight. The passenger mile and the ton mile statistics compiled by all railroads express these facts.

Now, this Formula attempts to divide all items of expense into one or the other of these classes or apportion such as are indivisible into one or the other class upon a unit used for that purpose. It produces results that cannot be reflective of true conditions. Take, for instance, the

president's salary. Under this Formula a much larger percentage per passenger mile is worked out for the state passenger than is for the interstate passenger. No one, by any argument, can justify this conclusion.

The carrying of all expenses through the line and terminal division brings out results quite different from what they would be if no such division was made and if the allocation was made direct to freight and passenger to begin with, and after being divided between freight and passenger, then to state passenger and interstate passenger or state freight and interstate freight, and the expense that is additional to state service, that is, for an additional terminal in the state, can be properly worked out by following actual instead of artificial divisions of expense. Take the train service, on the one hand, and station on the other, to illustrate this. There cannot be any possible difference between the cost of hauling a ton of freight which is state, to a ton of freight which is interstate so far as the haulage is concerned, where the haul is under similar conditions. It is well known that freight is hauled in two classes of trains, through and local. It is well known that the local is a more expensive train than the through. There can be no possible distinction in expenses between freight hauled on a local, whether state or interstate, and freight hauled on a through, whether state or interstate, respectively. The testimony shows that the local train is largely used to aid the through train and distributes company material and empty cars for the benefit of the whole service. The added expense of the local train should not all be carried to traffic that is borne upon it. On the passenger side, there can be no possible distinction in the haulage expenses between passengers riding in the same character of trains and the same character of equipment. There is a marked distinction in service and in expense between passengers riding in Pullmans and in day coaches, but when a passenger receives the same service it is at the same expense to the railroad whether he is a state or an interstate passenger.

Therefore it is seen that so far as the haulage cost is concerned the expense is not properly a line expense, as line is used in this Formula, but is an expense of the character of service rendered whether it is freight service or

passenger service, and there can be, and is, no possible distinction in that expense when the state passenger or the interstate passenger or the state ton of freight or the interstate ton of freight receives the same service from the same class of train. Therefore the haulage expense is necessarily and naturally an expense determinable from the service rendered to either the freight or the passenger.

Now, take the station side of it. There are, broadly speaking, two terminals for each ton of state freight and two terminals for each state passenger as against one or none for the interstate respectively. This is an expense not incurred by the interstate to the same extent as the state within the borders of a given state. It is ascertainable from data easily compiled and to be found in the time studies in this case if they were reliable in determining the number of handlings of tons and passengers at each station respectively. That and that alone is the extra expense of the state business. Instead of trying to arrive at it in this way the Formula builds up this artificial distinction between Line and Terminal, and runs it through the train service, through the yard service, through the station service, through the general expense and every other phase of railroad expense that may be found, creating distinctions which do not exist and making differences where there are none.

The yard service is a distinct service of itself. The classification of the making up and breaking up of trains as Line in the Formula throws a burden upon every pound of State freight of bearing this expense in the same proportion per ton mile as the interstate freight, which receive a much larger proportion of this service than does the State freight. The statistics of the road, either already compiled or easily accessible, would give all the cars handled in and out of division yards, their way-bills would show them to be state or interstate and this expense could be directly located to the state or interstate, as it should be, instead of being carried through the Line and Terminal division.

An illustration of the inapplicability of this division can be found in Maintenance of Equipment in all of its branches. The locomotive from the time it starts on its journey until it is ended, is hauling freight or passengers,

as the case may be, and receiving injuries and wear from so doing. It is admitted by the authors of the Formula and by the witnesses in this case that the division of this expense cannot be ascertained other than by the opinion of experts, wherefore they introduced an expert who, from his experience in mechanical engineering and practical railroad operation, attempts to locate so much of these repairs to Line and so much to Terminal, while he admits that no such distinction was ever known in his railroad experience and he is looking backward on his railroad experience in the light of this Formula to ascertain whether given classes of expense belong on the one side to Line or on the other side to Terminal. The authors of the Formula have confessed to a truth when they say that this expense cannot be divided except through opinion evidence, but the reason, however, is different than that given by them. It is insusceptible of such allocation. In truth these expenses cannot be divided according to such distinctions as line or terminal because they are interwoven between the two, and no man or set of men can tell where much, if any, of it occurred. For instance, it is in evidence that a strain will occur upon a locomotive and a break will occur in the line, probably not due to anything on the line but due to some handling at the station or in the yards before it is started on its journey, or latent defects in the mechanism, or mayhap like the one horse shay, it goes to pieces all at once, not as a result of either line or terminal service, but the result of both for years.

Mr. Symons testified that 80 per cent of the damage to freight cars is in rough handling, and that is principally in yards, yet 80 per cent is not distributed according to his own classification of it. He makes other and further distinctions between Line and Terminal and yet 80 per cent of it, according to his theory, is due to rough handling in classification yards, and this is line service under the Formula, yet he works out 64 per cent of this expense to terminal. This but illustrates the fact that these expenses are insusceptible of allocation between Line and Terminal.

Take the painting of cars for further illustration; time and weather alone determine the necessity for this, unless an accident makes it necessary, and the time spent on the

road or the time spent in waiting for the train movement are not determining factors to fix this expense. Recently we have had an illustration of the impossibility of ascertaining such elements. In view of the threatened strike there was an embargo laid on the receipt of freight for a few days, therefore thousands of freight cars throughout the country were tied up and had no movement at all, and yet, under this Formula, painting expenses during the period of inaction would be charged to terminal. At times there is congestion of traffic, usually in the east, cars cannot be gotten out of the great terminals; there is a scarcity of them in the west and the south; sometimes there is congestion in the south when there is a rapid movement of the cotton crop; sometimes in the west in the rapid movement of the grain crops. These traffic conditions determine the character of the expense, but this Formula puts all the expenses of this congestion in Terminal service, when in fact it was an expense incident to the whole business and not to this part of it. Time is not a factor to determine Line and Terminal service. The real facts are, as developed in the evidence showing actual railroad operation, that all of these expenses for the repairs of cars and locomotives are mere incidents to the service and are not susceptible of being divided in these artificial classes because these classes do not exist in the actual operation.

Another illustration of the impossibility of making such a division between Line and Terminal is found in the wages paid to trainmen. Accounts 80 and 88 are among the big items of the expenses of the road. Probably 15 per cent of the total operating expenses are represented by these two accounts. The Formula apportions these expenses between Line and Terminal on the basis of the time spent by the train in Line service and in Terminal service as determined by the time studies made by the railroads, which are mere hearsay testimony at best. These wages are based largely, if not wholly, upon the mileage run and not upon time. When a run is not made within the time, there is a system of overtime which has lately been much in the public view. The overtime is caused principally, on the passenger side, from accidents and weather conditions, and, on the freight side from these causes and from overloading of the trains.

The element of time has little influence on the amount represented in these accounts.

These wages were for the two months test period of 1913, were $83,422.81, of which $16,701.58 was assigned to terminal (Ex. 8, R. p. 1991). This means $500,536.86 per annum and an annual charge against terminal of $100,209.48. This terminal is divided between terminal freight and terminal passenger, and of the freight terminal 31.65 per cent is charged to intrastate freight (Ex. 15, R. 2018), and of the passenger terminal 74.52 per cent is assigned to state passenger (Ex. 16, R. p. 2020).

The use of the stations when stopping thereat by these trains has not, as a general proposition, added one dollar to the amount paid these trainmen by the railroad, and yet of every dollar paid them approximately 20 per cent is charged to Terminal and of that amount 74 per cent on the passenger side to the state, while no use representing that expense has caused it, and on the freight side 31.65 per cent of it is charged to state freight, wherefor no distinct service is rendered as terminal and the terminal service did not incur the expense as such.

## ASSIGNMENT TO STATE BETWEEN LINE AND TERMINAL OF EQUIPMENT REPAIRS.

The railroad contends throughout that the cause of the great increase of state expense as worked out under the Formula is due to the more numerous uses of terminals by the state freight and passengers. That is the basis and the only basis for the contention that the state traffic, freight or passenger, is more expensive than the interstate freight or passenger. There is much discussion of the short haul as producing greater expense, but that in its last analysis works back to the excessive use of terminals. The railroads introduced Mr. Symons to establish a relation between Line and Terminal so far as equipment repairs are concerned and took the estimates of the General Managers sustained only by his testimony upon which to apportion between Line and Terminal these great items of expense.

The testimony shows the traffic is divided into three

classes, viz: intrastate with two terminals in the state, the strict interstate with one terminal in the state, and the trans-state with no terminal in the state.

All of the repairs, renewals and depreciation of equipment on the entire system of each of these roads is thrown into a pot and the part assigned to Arkansas ascertained by taking the mileage run respectively by the locomotives or cars in Arkansas as compared with mileage run by the locomotives or cars in the system. These repair accounts thus thrown into the pot and thus segregated to Arkansas include all repairs, Line and Terminal, as defined in this Formula, alike. Necessarily, if the Formula be true and Mr. Symons be correct, and upon that assumption the plaintiffs predicate their case, the amount of these expenses assignable to Terminal is as given therein. These Terminal injuries, resulting in the expenses referred to, occur alike in and out of Arkansas. To every pound of freight and t every passenger there is somewhere two terminals, whether in or out of Arkansas. Therefore it is apparent that so far as the trans-state freight and passengers are concerned, the Terminal expenses of the same must be eliminated before there is an assignment to Arkansas of these expenses. The railroad in this case has not been backward in finding all the terminal expenses in Arkansas, but they have been backward in finding the Terminal expenses out of Arkansas. If the Line and Terminal division is to be applied in Arkansas to all of the expenses assigned to the state, the Terminal expenses out of Arkansas must be segregated, in order to arrive at the truth in regard to the amount to be apportioned after the assignment is made to Arkansas. It is apparent that the Terminal expenses outside of Arkansas must be subtracted from the amount assigned to Arkansas, if the truth is to be found. We have not available any statistics on the amount of trans-state freight traffic. It may be gathered from the evidence that it is considerable and the total interstate freight is 96.35, intra-state 3.65 and interstate passenger, 56.23 and intrastate 43.77 (Ex. 40.)

To put the proposition concretely, 96 per cent of the freight traffic is interstate, and 56 per cent. of the passenger traffic is interstate. Broadly speaking, none of these has more than one terminal in Arkansas, (the exception being

such traffic as cotton and lumber, which are carried into compress and mill points, and re-shipped, and some passenger transferred at junction points), and much of it, probably much more than one half of the freight has no terminal in Arkansas, but is that large volume of traffic passing south from St. Louis to Oklahoma and Texas, through one corner of the state; and the reverse traffic coming from Oklahoma and Texas to St. Louis and east. And on the other side of of the state, large traffic from Memphis to Missouri points, and from Missouri points to Memphis and beyond, which has no terminal expenses in Arkansas. To illustrate this this movement, suppose a carload of Missouri mules were shipped abroad, taking the Frisco road at some point in Missouri, passing through the northeastern corner of Arkansas to Memphis, and thence to the sea board. This shipment would have a terminal expense in Missouri and another one in Memphis, or at some other point beyond Memphis where the 'Frisco road delivered the mules to another line; say at Birmingham, Ala. The two terminal expenses, say at Kansas City, Mo., and Birmingham, on the Frisco road, would be incurred wholly outside of Arkansas and the car in which the mules were shipped would make a mileage, say for the sake of this illustration of 1000 miles, 100 of which was in Arkansas; and taking this shipment as an illustration of the entire expense of freight car repairs it would be found that one-tenth of the freight cars repairs incurred by that shipment would be assigned to Arkansas, because the mileage in Arkansas compared to the total mileage of the car was one-tenth thereof. According to the estimates of the General Managers, which were used to divide the freight train car repairs between line and terminal 36.03 per cent. is assigned to line and 63.97 per cent. assigned to terminal, (Formula page 14), for easy illustration this will be referred to as 36 and 64. Suppose that the freight car repairs on the car carrying the mules was $100, for the mileage which it traveled and for the two terminal expenses incident to the haul from Kansas City to Birmingham, according to the Formula, $36.00 of this was incurred on the haulage between the terminals, and $64.00 was incurred in the two terminals, Kansas City and Birmingham. Ten per cent of the $100.00 represented the Arkansas proportion of the total expense, measured by the proportion of the car miles in Arkansas to the total and this $10.00 includes

$6.40 incurred at Birmingham and Kansas City, and only $3.60 incurred in Arkansas. Take another illustration of the actual movements on the 'Frisco road, a shipment of merchandise from St. Louis, Mo., to Fort Smith, Arkansas, a distance of 414 miles, of which 109 was in Arkansas. There are two terminals on that shipment, one in St. Louis, Missouri, and one in Fort Smith, Arkansas, roundly speaking, one-fourth of the mileage is in Arkansas and one-fourth of the expenses would be assigned to Arkansas. Suppose, again that this expense was $100.00, $25.00 of that would be assigned to Arkansas, but of the $100.00, $64.00 was incurred, according to the Formula for terminal use; one-half of which was incurred in Arkansas and one-half of which was incurred in Missouri. Therefore this is the result: $100.00 is the total expense, the mileage in Arkansas being one-fourth, $25.00 is assigned to it. This $25.00 is made up of two elements, one, line, and one, terminal, all of the line part of this is properly assigned to Arkansas, which is $9.00; the other part of it, 64 per cent, or $16.00, is all charged to Arkansas; whereas, one-half of that or $8.00, was incurred in Fort Smith, Arkansas, and the other half in St. Louis, Missouri. The $8.00 incurred in St. Louis should be subtracted from the expenses assigned to Arkansas and would leave of the $25.00, the $8.00 incurred at the terminal in Fort Smith, and the $9.00 the Arkansas proportion of the injuries received in the haul or a total of $17.00, should have been assigned to Arkansas, instead of the $25.00. In the other illustration of the transtate freight of the $10.00, Arkansas' proportion of the expense, $6.40, was erroneously assigned to the state, when the amount should have been only $3.60 instead of $10.00. The same proposition (less only in degree of error) applies to the passenger car mile division, between line and terminal, and to the locomotive mile division, between line and terminal. Exhibit 21 shows the total operating expenses assigned to Arkansas, for the year 1913 was $3,116,570.38, and of this maintenance of equipment expenses were $603,200.21, constituting 19.36 per cent. of the whole; and of this maintenance of equipment expense, $603,200.21, is divided between line and terminal, on the percentages stated in the Formula, at pages 13 and 14, and resulting in charging to the state the total expenses both line and terminal, in proportion to the mileage run of the equipment of the whole system, compared to the mileage run



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in Arkansas, and including, the terminal expenses incident to the service of the equipment out of the state as well as within the state. This is not true of freight locomotive repairs, which are divided on time studies between line and terminal, but those time studies should have been divided between line and terminal in the system before apportionment to Arkansas. It is a difference in detail, not principle. As the interstate is about 96 per cent of the freight ton miles and 56 per cent. of the passenger miles, it is apparent that a vast majority of the terminal expenses were incurred out of the state. The margin of error here is so great that no reliance can be placed upon the processes of the Formula, which is put to work upon the expenses assigned to Arkansas in this manner. If the line and terminal division is true, and if these percentages, sustained by Symons' testimony, are true, then a great majority of the expense was incurred outside of the state, and yet the sum representing that expense incurred outside of the state is assigned as the part of the expense distributed within the state, and upon that swollen sum there is an attempt made through the Formula to work out a division ultimately between state and interstate, which is necessarily too much by the amount incurred from terminal service without the state.

## IMPROPER DISTRIBUTION OF LINE AND TERMINAL EXPENSES.

### 1. General Expenses:

The railroad insists that all expense is inherently divisible between Line and Terminal and the Formula is predicated on that theory and attempts to do so. The railroad traces into each of the five primary accounts, Maintenance of Way, Maintenance of Equipment, Transportation, Traffic and General, both Line and Terminal expenses. In Maintenance of Equipment it is probably more stressed than in other primary accounts, but in all of them except Traffic there is a division drawn between these expenses. Traffic is treated as all Terminal and all distributed on the Line units.

The distributions between Line and Terminal, however, are not made until the expenses are assigned to Arkansas.

In the accounts of Maintenance of Way and Transportation the expenses are practically all local to Arkansas. There is some small part even of these expenses assigned where a district crosses the state line, but broadly speaking, all of the Maintenance of Way and all of the Transportation expenses arise within the state of Arkansas and the division between Line and Terminal, if such can be made, properly begins with the sum of expense found to be incurred in Arkansas. But it is different when we examine the accounts of Maintenance of Equipment, Traffic, and General.

General Expenses, Traffic Expenses, and Maintenance of Equipment expenses cannot, or at least are not located to Arkansas, and are therefore, in this Formula, apportioned to it upon the basis therein shown. The Traffic Expenses on the entire system are thrown into a pot, or rather, two pots, one passenger and one freight, and apportioned to the state on the basis of the revenue net ton miles for the freight and revenue passenger miles for the passenger. That is to say, the passenger miles and ton miles in the State of Arkansas are compared with the system as a whole and the proportion which Arkansas bears respectively to the system is the proportion of the expenses freight and passenger assigned to Arkansas. After being assigned to Arkansas they are all classed as Terminal, but are apportioned on the Line units. It will be noticed that while the railroad insists that all expenses are divisible between Line and Terminal they are not so divided before being apportioned to the state, and in this instance the division comes after the apportionment to Arkansas, and in this account they are divided on the passenger mile and the ton mile units between state and interstate and are not divided between Line and Terminal within the state as are all the other expenses, but are at once carried to the Terminal side of the equation.

It divides the total expenses between the system and Arkansas on one unit and the expenses thus assigned to Arkansas on the same unit between state and interstate. In another respect this account is used as an improper basis. It is all treated as Terminal and carried as a Terminal expense in its entirety and added to the Terminal expenses ascertained under the Formula in each of the other accounts; then all the Line and Terminal expenses are used as a basis to divide the overhead between Line and Terminal and for

other similar purposes and in this way the Terminal is unduly increased. But we are not going into that feature at this time.

The assignment to Arkansas does not consider a division between Line and Terminal expenses either in Arkansas or out of it, and so far as the apportionment to the state from the system is concerned and so far as the apportionment between state and interstate after this sum is assigned to the state, the same basis is used and no objection can be raised to it as an accounting proposition. If, as a matter of fact, every dollar spent for Traffic Expenses was equally for the benefit of the intrastate with the interstate, this would be a fair method of division, but that is a question of fact and not a question of accounting. And if these expenses were not carried to the Terminal side, and we contend that they are in no sense Terminal, there would be no objection to this account in any way, and it is set forth here to draw the contrast and to explain methods rather than to criticise it.

On General Expenses, after those distinctively freight and passenger are split off, the apportionment is made to the State on the basis of assignment of all operating expenses, Accounts 1 to 105, (except General offices, which is itself an overhead). They are carried directly to the freight and passenger after apportionment to the state and are thus divided in the freight and passenger Line and Terminal divisions and differ only in detail from the mass of the General Expenses which are under discussion. After the General Expenses are thus set apart to the state they are in turn divided between Line and Terminal and ultimately between state and interstate. This plan contains an accounting error that injuriously affects the state, and which was not in the plan applied to Traffic Expenses. The General Expenses are set apart to the state on the basis referred to and then divided between Line and Terminal and the Line and Terminal split up into passenger Line and Passenger Terminal, Freight Line and Freight Terminal, and ultimately the Passenger Line and Freight Line, Passenger Terminal and Freight Terminal is split up into state and interstate. This plan contains two radically wrong principles: First, the assumption that the General Expenses, such as the president's salary and office force, law expenses, claims department,

pensions and all other like items, should be divided between Line and Terminal when there is no relation between these expenses and such divisions. In other words, these General Expenses were incurred as a whole and not in the fragments into which they are split by the Formula. The operation of this error is to carry into the Terminal side an excessive proportion of the total expense due to the use of Symon's percentages and the various time studies of station employes, trainment, switchmen, etc. But that phase of the error is elsewhere discussed and attention is now called to the other phase of it. Second, a fundamental error and one with which we are now concerned in this chapter is the assignment to the state on one basis and the apportionment of the amount thus assigned to the state on another basis, or rather on many other bases. On the face of the Formula it would appear that the assignments were identical, but that is a delusion. The assignment to the state is based (after splitting off the freight and passenger expenses, distinctively such) on the relation that Accounts 1 to 105 in Arkansas bear to Accounts 1 to 105 in the system (Formula, page 11). After this is found then it is apportioned, after dividing between freight and passenger, between Line and Terminal on the basis of Accounts 1 to 105 in each (Formula page 16). The common expenses are divided between freight and passenger on the basis of Accounts 1 to 105 (Formula, page 24). And the same process is then followed in the further development of the separation. There is a peculiarity in the traffic which renders this seemingly uniform basis a delusion, as it is not in fact a uniform basis. As heretofore stated, the expenses under the accounts of Maintenance of Way and Transportation are practically all local to the state, and all of the Line and Terminal expenses, as defined in this Formula, are to be found within the state, but such is not the case in regard to General Expenses, Traffic Expenses, and of Maintenance of Equipment Expenses. Those expenses are made up of Line and Terminal expenses incurred everywhere in the system including Arkansas and out of Arkansas. Passing for a moment the Traffic, as that is treated differently, as heretofore stated, it is seen that General Expenses and Maintenance of Equipment expenses, are made up from every activity of the railroad and every part of the system and in every department of work. Every pound of freight and every passenger whether revenue freight or company material,

revenue passenger or deadhead passenger, has two terminals somewhere. Under the theory of separating the Line and Terminal expenses, they are separate quantities incurred at the origin and destination of the freight and passenger and they, being somewhere on the system, enter into the total expense for these two accounts. In other words, all of these expenses under General Expenses and Maintenance of Equipment Expenses are each thrown into a pot on the system and the Arkansas share taken therefrom on a basis which is supposed to represent Arkansas' fair proportion of those expenses. In the instance under consideration, General Expenses, this assignment to Arkansas is made on the basis of the relation of all expenses in Accounts 1 to 105 in Arkansas to the same accounts in the system, and no one of these accounts recognizes Line and Terminal; in fact, according to the Formula, into each of them Line and Terminal is traced and each is separated into Line and Terminal, but that is done after the assignment is made to the state. The freight and passengers with which we are now concerned are the intrastate and those intrastate passengers have incurred the full measure of Line and Terminal expenses. To each is ascribed the passenger miles or ton miles, as the case may be, and to each is ascribed the expense of the terminal, whether freight or passenger, and in the case of the intrastate the expense of two terminals is necessarily ascribed to it or to him. The assignment to Arkansas includes the interstate expenses, freight and passenger, as well as the intrastate. This interstate has likewise, a full measure of expense, Line and Terminal, as the intrastate, but, so far as the Terminal is concerned, not within the borders of Arkansas. Part of the interstate, which is sometimes called strict interstate, has one terminal expense in Arkansas and one without Arkansas, another part of the interstate, the trans-state, has no terminal expense in Arkansas, but these expenses of the interstate are in the pot just as the Arkansas intrastate expenses are in the pot.

It is argued as a reason for the Line and Terminal division that the state has two terminal expenses and the interstate never more than one and a considerable portion of it none in a given state, and that the General expense should bear its proportion of each class of the expense, and that therefore there is more expense to the state traffic on account of the additional terminals than to the interstate, and

much is said of the shorter haul of the state traffic, both freight and passenger, producing the additional terminals and thereby the additional expense. But all of this expense, whether produced in Arkansas by short hauls or whether it be long haul traffic, has two terminals and the expense of the two terminals has gone into the pot. These terminal expenses incurred by state freight and state passengers, be they tangible or intangible, which have been traced into the General Expenses, form a constituent part of the pot of General Expenses along with all other tangible and intangible terminal expenses traced into this pot of General Expenses incurred in other parts of the system than Arkansas.

We elsewhere contend that General Expense, from its nature, is insusceptible of the Line and Terminal division, but the Formula claims otherwise and the exhibits in this case attempt to trace into either Line or Terminal every dollar of General Expense assigned to Arkansas.

Turning to Exhibit 8, page 3, it is found that for the two months' period, November and December, 1913, General Expenses were divided 63.51 per cent. line, and 36.49 per cent terminal; for brevity this will be referred to as 64 per cent. line and 36 per cent terminal.

In other words, 36 per cent. of all General Expenses are traced into Terminal. Thereafter the Line and Terminal fragments are spit into Freight Line and Passenger Line, Freight Terminal and Passenger Terminal, and finally these fragments are split into state and interstate. The sum thus obtained and upon which the processes of the Formula begins to work was taken out of the pot containing all these terminal expenses everywhere, and it must be remembered that in this pot, Arkansas intrastate had its full measure of expenses as all expenses incident to its two terminals were in it, just as all the expenses incident to the terminals, at least one of which was without Arkansas, were in the pot on the balance of the traffic. But after obtaining that sum containing the full measure of the Arkansas intrastate Terminal expenses traced into these General Expenses, the Formula ignores the fact that the interstate terminals out of Arkansas had increased the general pot to their extent, and divides the sum obtained from the general pot on the Terminal's handlings, which will ascribe no part of the trans-state, and only one of the interstate to the interstate side of the ac-

count. This plan necessarily increased the charge to the intrastate on account of its greater number of terminals relatively in Arkansas to the interstate and trans-state.

To illustrate with these figures: Suppose the General Expenses of the Frisco were $100,000, divided approximately 36 per cent Terminal and 64 per cent Line, and that the Arkansas proportion thereof, on the basis of assigned charges was, say 10 per cent; that would assign to Arkansas $10,000, but this process ignores the Line and Terminal division as apportioned to Arkansas which is based entirely on the relation of Accounts 1 to 105 in Arkansas, to those same accounts in the system and they did not recognize Line and Terminal. Had Line and Terminal been recognized there would have been assigned to Arkansas under the assumed division $6,400 of Line Expenses and $3,600 Terminal. By reason of the Terminal expenses incurred everywhere in the system there are $3,600 more expenses assigned to Arkansas than would be if there were no Terminal expenses. This $3,600 represents Arkansas' proportion of two terminals on every pound of freight and on every passenger, intrastate, interstate and trans-state, touching Arkansas, although most of the interstate was incurred outside of Arkansas. Then the $3,600 is apportioned on the basis heretofore stated, which basis, if the theory of the Formula is correct, will attach to state and interstate freight and passenger the proper proportion of each dollar of it. Owing to the fact, that when treated within the State of Arkansas alone, necessarily a greater proportion relatively of this sum will be attached to the state than to the interstate or trans-state, owing to the more numerous terminals of the intrastate, but the $3,600 is made up in part of the expenses of the trans-state tons which pass through Arkansas, the terminals of which were outside of the state, say in Missouri and Tennessee, and of the strict interstate tons and passengers the expense of one terminal was outside of the state and one within the state. Therefore, the sum upon which the Formula is put to work is much larger than it should be because of this $3,600 of terminal expense. A large portion of it is made up of the share of the interstate and trans-state terminals out of the state, and the sum should be much less, say, for instance, the sum was $1,000 instead of $3,600, then that $1,000 should be worked upon by the Formula instead of the $3,600, and the amount incurred

by the state and interstate found and attached to each respectively. Assuming that the $1,000 would be the correct amount representative of the Terminal expenses incurred in the state for the business transacted within it, under this account, instead of the $3,600, no injustice could be done the interstate because this would be the sum actually incurred in the state, just as the Maintenance of Way sum worked upon by the Formula is the amount actually incurred in the state, and the Transportation sum worked upon by the Formula is the amount actually incurred in the state, and the authors of the Formula assume that it can take the sum actually incurred in a state for a given expense and correctly allocate it to state and interstate by tracing it through the various bases in the Formula designed for that purpose in order, as it claims, to properly attach the actual terminal expenses incurred in the state for the respective state and interstate traffic, divided between passenger and freight. Therefore, it is apparent that in working out the processes of the Formula, under the Line and Terminal theory, that the assignment to the state of General Expense is wrong, if the Line and Terminal be a true division.

If there be no such distinction as line and terminal in general expenses, as we most earnestly contend there is not, the assignment of these general expenses on the basis of taking the proportion of accounts 1 to 105 in Arkansas, compared with accounts 1 to 105 in the entire system, there would be no criticism of the method, and the error, if any, would be in the underlying factors constituting these accounts, and not of the theory of reaching the proper proportion of these expenses to be assigned to Arkansas. But the Formula and the railroad's case is entirely predicated on the theory that there is a radical distinction between line and terminal, which runs through all of these accounts, including the general expenses and results as heretofore seen in assignment of the general expenses, 64 per cent to line and 36 per cent to terminal. This method works out an excess cost against both the state freight and passenger traffic, when there should be no excess cost in the general expenses worked out against either. The following table computed for this brief by Haskins and Sells shows the excess cost in general expenses, worked out against each class of traffic by the Formula in the plaintiff's exhibits:

**Freight: Months of November and December, 1913.**

| General Expenses | Total | % | State Amount | % | Interstate Amount |
|---|---|---|---|---|---|
| Line (exhibit 14) | $ 8,617.77 | 5.62 | $ 484.32 | 94.38 | $ 8,133.45 |
| Terminal (exhibit 15) | 6,385.50 | 28.62 | 1,827.53 | 71.38 | 4,557.97 |
| Total | $15,003.27 | | $2,311.85 | | $12,691.42 |
| Revenue. ton miles (Ex. 6) | 19,589.27 | | 671.791 | | 18,917.398 |
| Cost per mile (in cents) | | | 0.3441 | | 0.0671 |
| Percentage of excess cost of State over Interstate | | | | | 412.82 |

**Passenger:**

| General Expenses | Total | % | State Amount | % | Interstate Amount |
|---|---|---|---|---|---|
| Line (exhibit 13) | $ 3,599.46 | 38.00 | $1,367.79 | 62.00 | $ 2,231.67 |
| Terminal (exhibit 16) | 925.75 | 67.17 | 621.83 | 32.83 | 303.92 |
| Total | $ 4,525 21 | | $1,989.62 | | $ 2,535.59 |
| Rev. passenger miles (Ex. 6) | 9,895.424 | | 4,012.199 | | 5,883.225 |
| Cost per mile (in cents) | | | 0.0499 | | 0.0431 |
| Percentage of excess cost of State over Interstate | | | | | 15.78 |

Thus it is seen through the processes of the Formula in the distribution of general expenses, there is worked out against the state freight an excess cost of 412.82 per cent, and against the state passenger an excess cost of 15.78 per cent. This is due to two facts; one, the assignment to the state of too much general expenses, including in that assignment the expenses of terminals incurred outside of the state (if there be such separation in this class of expenses), and the second, other errors of the Formula, which work out excessive costs against the intrastate traffic. How much is due to one, and how much is due to the other no one can ascertain, from the data in this record. That the intrastate freight should bear 412.82 per cent extra cost over the interstate freight, and that intrastate passenger should bear 15.78 per cent excess cost over interstate passenger in the general expenses, is a proposition that no one for a moment will believe. None of the elements constituting the so-called extra cost, short haul and more numerous terminals of the state traffic applies to general expenses. If the contentions of the railroad be conceded for the sake of the argument, that these short hauls produce more terminals to the state traffic than the long haul the interstate, per mile run, and therefore incur extra expense at stations, and extra expense in terminal handling of the cars, lost time at the terminals for

the use of the cars, and the various other matters asserted as producing excess cost of state over interstate business, yet none of these could apply for a moment to the general expenses. An element of so-called extra cost of state freight over interstate freight is the larger proportion of intrastate freight moving on the local trains, than on the through trains. The elements of the extra expenses of the local train are the expense incurred for the benefit of the through train as well as for itself, but if they be conceded as an element of extra expense working against the intrastate, for the sake of the argument, certainly it doesn't apply to general expenses. And no element of extra expense to the state traffic over the interstate which has been contended for, can possibly reach to the general expenses, yet the grotesque results, above shown, were brought out through the erroneous assignment of excessive amounts of general expenses to the state (if the line and terminal distinction is true), and secondly through the erroneous processes of the Formula.

**2. Maintenance of Equipment Expenses:**

The same proposition, except in much aggravated form, is found in the assignment of the equipment repairs to the state between Line and Terminal and thereafter split up until they ultimately are divided between state and interstate. Maintenance of Equipment Expenses, Accounts 25, 26 and 27, repairs, renewals and depreciation of locomotives; Accounts 31, 32 and 33, repairs, renewals and depreciation of freight cars; Accounts 34, 35 and 36, repairs, renewals and depreciation of passenger cars, amount to approximately 20 per cent of the total operating expenses of the road.

Locomotive and car repairs are incurred by and for the system as a whole. The railroads have shops located at such points on their system as is most convenient for operation. The repairs are done at those various shops irrespective of state lines; the shops are of two kinds, those for general repairs and those for running repairs, and each of them works irrespective of state lines, and wholly for the convenience and economical operation of the railroad as a whole. These repairs are all pooled, that is, respectively, the engine repairs being in one pot, the freight car repairs

in another and passenger car repairs in another. In the assignment to states in the Formula these repairs are set apart to each state on the basis of the engine or car miles run in the state compared with the engine or car miles respectively run in the system. The theory is that the cost of repairs in Arkansas for engines is identical per mile run with the cost of repairs per mile in the balance of the system, and the same theory as to freight cars and the same as to passenger cars.

So far as freight cars are concerned, we have no quarrel with this plan of itself, as it is a generally accepted fact that freight cars throughout the United States are of about the same grade, and the expensiveness of them per mile run is practically the same in the same section of country. In regard to the passenger cars, it is questionable whether Arkansas is fairly treated, that depending upon whether the equipment in Arkansas is equal to an average of the equipment of each system. The same thing is true of the locomotives. But we are not concerned with these problems in this discussion. We will assume for the sake of this discussion that the engine mile is the proper factor with which to divide the engine repairs, renewals and depreciation between the state and the system and that the car mile is the proper factor for the passenger and freight cars.

The equipment repairs which have gone into this pot are made up of two classes of repairs according to the theory of the Formula: line and terminal, as therein defined. At pages 13 and 14 of the Formula, these repairs are divided on the General Managers' percentages, supported in the main by the testimony of Mr. Symons, except freight locomotive repairs, which are divided on time studies between line and terminal within the state, but not before. Passenger locomotive repairs are divided between line and terminal in the same proportion as determined for passenger cars, which is: 64.94 per cent to line, and 35.06 percent to terminal, and freight car repairs are divided 36.03 to line, and 63.97 to terminal; which for brevity will be referred to as 36 and 64. The terminal proportion of these repairs range ing from 35 to 64 per cent are as much in the pot as the line proportion of them; they are in the pot as a whole, not in the pot in distinct classes, but they are put in a dis-

tinct class after their assignment to the state. Taking again easy figures for illustration, suppose that one million dollars represented the repairs to freight cars on Frisco system, and that the freight car mileage in Arkansas, compared with the freight car mileage of the Frisco system was 10 per cent, therefore $100,000 would be set apart to Arkansas as its proportion of the freight car repairs. According to the Formula $640,000 of this $1,000,000 was due to terminal service, and $360,000 incurred in the line service. The injuries causing repairs to the amount of $640,000 was due to terminal service everywhere in the system and represented the use of two terminals for every pound of freight handled on the freight cars. The same proposition is true, of course, as to locomotive and passenger car repairs; but the illustration, for the purpose of simplicity, is confined to the one class and it applies, only differing in percentage assigned to line and terminal in the other equipment accounts.

Exhibit 40 shows the percentage of the total ton miles in Arkansas to be intrastate 3.65 per cent; interstate 96.35 per cent, and this is a factor which will fairly represent the car mileage in the state as between state and interstate, and indicates that practically 96 per cent of the freight traffic in Arkansas is interstate. There appear no car mile statistics of the traffic within the state, so the ton mile to illustrate the relationship is referred to. There are no statistics in the record showing what proportion of this traffic is trans-state; Mr. Hamilton frequently said it was a large volume of the traffic of the road, and as the road cuts into three corners of the state it is reasonable to assume that the trans-state traffic amounts to the major part of it. Of the million dollars total freight car repairs, of the entire system, using the illustration, $640,000 of that represented injuries received in terminals, as defined in this Formula, and these terminals existed everywhere throughout the system. Every ton of freight, in the definition of terminal, under the formula, has two terminal expenses somewhere on the system, and it is these two terminal expenses somewhere on the system, that aggregate $640,000 of the total million dollars for freight car repairs. If the line and terminal distinction is the true one, in equipment repairs, and if these percentages given in the Formula are the true relations of

the line to the terminal, for these expenses, then the formula should have been applied to these expenss before their assignment to Arkansas, instead of being applied after the expenses are assigned to the state. In other words, the Formula if true should have been applied at the source instead of half way down the stream. If the Formula be true and these percentages be true, as applied to equipment repairs, then the amount assigned to Arkansas should have been worked out in this way:

Of the million dollars, 36 per cent, or $360,000.00 was due to line injuries and if the Arkansas mileage for freight cars was 10 per cent of the mileage of the freight cars in the system, then $36,000.00 of this expense as the line proportion of the total should have been assigned to Arkansas, and the terminal expenses should have been assigned on the basis of the intrastate tons actually handled in Arkansas, compared with the interstate tons actually handled in the system. These terminal expenses accrue according to the theory of the Formula, from the terminal handling the freight, and not to haulage of the freight. The appellees in their brief insist in many places that the haulage unit, ton mile, has no relation to the terminal unit, therefore as each ton of freight has two terminal handlings somewhere, the number of tons actually handled in Arkansas compared with the number of tons handled in the system is the only process consistent with the formula that could properly be used, in order to find the terminal proportion of the freight car repairs which should be assigned to Arkansas.

It is well worth while to follow the differences in applying the Formula half way down the stream instead of applying it at its source. This calculation is made of only the one item, freight car repairs, renewals and depreciation, but exactly the same error inheres in passenger car, freight and passenger locomotives, repairs, renewals and depreciation. In fact, it affects the entire Maintenance of Equipment expense, because superintendence and other accounts in it are divided on the expenses thus located.

The entire system Maintenance of Equipment expenses for the two months' test period of 1913 was $1,144,714.21,

of which $113,870.23 was assigned to Arkansas (Ex. 7, R. p. 1987).

Assuming the two months' period to be representative of the year, the amount assigned for the year to Arkansas would be $683,221.38. A sum too large to be negligible. The freight car repairs, renewals and depreciation on the system for the said two months' period was $608,279.38, and assigned to Arkansas on the car mile basis, $61,504.02, (Ex. 7, R. p. 1987). This is just a little over 10 per cent assigned Arkansas, and that percentage will be used for convenience. Assuming the two months' period to be representative, this amounts to an assignment of $369,024.12 to Arkansas for the year.

Next, this $61,504.02 is divided between line and terminal on the General Managers' percentages, resulting in assigning to line $22,159.90, and to terminal $39,344.12 (Ex. 8, R. p. 1991). This amounts to an assignment for the year of $236,064.72 of terminal expenses to Arkansas based on the mileage of the freight cars run in Arkansas to it run in the system. This sum of $39,344.12 is then taken through the non-revenue adjustment explained in Exhibit 10 (R. p. 1999), and worked out in Exhibit 11 (R. p. 2006), and then becomes $37,224.10. Then the $37,224.10 is divided between state and interstate on gross tons handled on terminal tracks, assigning 31.32 per cent to state, and 68.68 to interstate, resulting in $11,658.59, being assigned to the intrastate freight and $25,565.51 being assigned to the interstate (Exhibit 15, R. p. 2018). Thus it is seen that $11,658.59 is charged to the intrastate freight for the test period, at the rate of $70,043.54 per annum. Exhibit 21, making the assignment to the state and its subsequent apportionment to intrastate and interstate does not give the separate accounts, but gives maintenance of equipment as a whole, and therefore to make a calculation for a year of this particular account it is necessary to assume that the two months period represents the year. As the railroad contends it represents not only the year, but a series of years and goes back as representative of conditions in 1907, it cannot complain of this assumption.

Now contrast with the $70,043.54 assigned against the intrastate freight by the process of the Formula as worked

out in the exhibits the amount which would be assigned had the Formula been applied to the total expense of the system before assignment to Arkansas. No reason whatsoever can be given conceding, for the sake of argument, that line and terminal distinctions apply to freight car repairs and that the General Managers and Symons, have correctly divided them between line and terminal why that distinction should not be made in the system before segregating the Arkansas proportion from the whole. The line proportion will be passed as this calculation is only now dealing with the terminal. Exhibit B (R. p. 2222, the accuracy of the data therein is undisputed), gives the total tons handled on the system for the two test months as 3,248,360. Exhibit 6 (R. p. 1979 on p. 5 gives the number of tons handled in Arkansas for that period, as carload and less than carload, state and interstate. Exhibit A (R. p. 2216), prepared by Mr. Simson to prove that the terminal and line units in the railroad exhibits, even under their theory, were computed erroneously, shows that the intrastate tons were all handled twice and interstate once. Mr. Hamilton admitted the accuracy of this exhibit.

It analyzed Exhibit 6, and showed the intrastate tons were 63,733. This is less than 2 per cent of the tons moved on the system for that period. Taking the total expenses in the system of freight car repairs, $608,279, and split it between line and terminal on percentage of 36 to 64, gives $389,298 as the terminal part thereof.

Quoting from page 2 of Exhibit 4 of the Railroad Company (R. p. 1962): "Proceeding on the assumption, as indicated by the principle laid down in the Formula filed as Exhibit No. 1, that it costs the same per ton for a given terminal or station handling of a ton of intrastate freight that it does for such handling of a ton of interstate freight."

Therefore, the utmost that the Arkansas intrastate freight should bear of this is the proportion of it to the total tonnage of the system, less than 2%. Two per cent of it is $7,785.96. But the non-revenue adjustment lifting from freight the burden it carries for passenger reduces the amount about 5 per cent, therefore this charge should be $7,396.67, the maximum charge against intrastate freight for terminal expenses; whereas the processes

of the Formula bring it out $11,658.59, or excess charge of $4,261.92, which multiplied by six to get the amount for a year in lieu of a two months' period, gives an overcharge of $25,571.52, against intrastate freight on this one account. The appellees have criticized the state much for not carrying its calculations to the intrastate traffic instead of stopping on the whole business, but as no reliable Formula has been worked out to separate the expenses and property, it is as yet impossible, but the data in their exhibits are sufficient to demonstrate this error of freight car repairs amounts to an over charge to intrastate freight of $25,571.52 per annum. As this one item is but little over one half of the total maintenance of equipment expenses, it is a safe assumption that if there was data to trace through the other items an excessive charge of $50,000 a year would be worked out against the state traffic on this account alone. This, in a measure, accounts for the excessive terminal cost of Arkansas, as worked out in the exhibits, which, when applied to the system, showed an excess operating cost of $5,000,000 per annum over the actual expenses.

The General Expenses for the system are for the two months, $226,769.93, (Ex. 7 P. 3), at the rate of $1,360,719.58 per annum, and the method of assignment therein, as heretofore shown, contains the same error of method, and if comparable factors were in the record, would show excessive charges against state traffic, which results in the extra cost percentages of 15.43 per cent., against intrastate passenger, and 319.58 per cent against intrastate freight (Ex. 17, R. p. 2022).

It is folly to attempt any calculation correcting the errors discovered and discussed when the correction would carry with it the use of these percentages to the state business. For that reason it is again suggested that the many caluculations in the new brief, such as changing the division of common maintenance of way expenses between freight and passenger from engine ton mile to direct charges, or any other basis is valueless because the calculations ultimately use these extra cost percentages when it reaches the intrastate.

To illustrate: Turn to exhibit 21 (R. p. 2043), where the expenses for the year 1913 is shown. The total ton miles in

the state were 326,191,250, of which 9,151,859 were intrastate and 317,039,391 interstate.

Exhibits 40 (R. p. 2145) gives this ratio as 2.81 intrastate for that year, which a calculation of the above figures proves substantially correct (although not exactly so). But by adding the 319.58 extra expense for state freight, the percentage assigned to the intrastate freight expense becomes 10.80, instead of 2.81. There is consequently assigned to intrastate freight $218,366.56. Whereas if only 2.81 per cent. had been assigned the amount would have been $57,205.68, or $161,161 too much. This exhibit was on the alleged value of the property before the stipulation of value and Exhibit 61 (R. p. 2209) gives the values reduced to the stipulation. In it the revenue was reduced by the diminution tables to the extent of $20,389.53. From the net operating income must be deducted taxes, rentals, etc., which left a balance available for a return on the property of $4,517.64 producing on $1,444,061 value of property engaged in freight traffic .31 per cent, and this without the corrections made by the State's exhibits. To this $4,517.64, add the $161,161 arbitrarily deducted from the state operating revenue on account of the so-called extra cost of this traffic, and there is a balance available for return on the property of $165,678.64, which applied to the property this railroad exhibit assumes to be the value of the intrastate freight property and it produces a return of approximately 11½ per cent. This, too, assuming that the revenue from the enjoined rates, not the actual rates had applied. When it is considered that the enjoined freight rates produced a ton mile revenue of 24.79 mills, while the interstate rates produced 7.76 mills (original brief p. 47), it is not strange that without extra cost percentage attached the intrastate freight traffic is producing such a handsome return on the property. As it is seen that a large part of the extra cost percentage is worked out on such items as general expenses—412.82 per cent—when by no possibility the line and terminal division producing it, could have any application, it is fitting to reject it in toto, and when done the return shown is made. This should be reduced, in truth, because the engine ton mile division of common line expenses between freight and passenger, amounting to $114,143.07, for the two months' period, overcharges passenger and undercharges freight. This sum is divided practically even. (Ex-

hibit 9, R. p. 1995). Whereas, under statements seemingly accepted by all sides in Smythe v. Ames, the division should have been 30 to passenger and 70 to freight. This expense amounts in round numbers to $684,000, per annum in Arkansas. With such a yardstick, no wonder the freight shows such good return and passenger such poor return. The conclusion is inevitable that the assignment of expenses to the state without recognizing line and terminal in the system from which taken and then apportioning them on that theory swells enormously expenses assigned to the state, as it includes terminal expenses of one half of the strict interstate and all the trans-state which are incurred out of the state, and then by other erroneous methods, working on this swollen sum, produces an excess cost against intrastate traffic, which is thoroughly unreliable, and through such methods the charge of confiscation is sustained through this mythical extra cost percentage.

## THE TIME STUDIES ARE HEARSAY.

The nature of the time studies, their method of compilation and far reaching effect of them are discussed in my reply brief on page 21-26. It was argued, that unlike reports of officers in due course of official duties and employees in making contemporaneous entries of acts done in course of routine duties, these reports were hearsay, and the summary of the various time studies expressed in percentages between line and terminal, etc., is a mathematical epitome of hearsay evidence. Instead of answering this argument the new brief contains many of the former statements which evoked this reply—that definite and minute information was obtained through these time studies; and time and again argue them as if established facts. Briefly stated, these reports contained divisions of expenses in stations made by the agents between several departments of work, the time of the various trains divided so as to work out a line and terminal proportion of time, the performance of switch engines, and many other special tests and counts and statistics made for the purpose of this suit, and were compiled under instructions by the various employees, sent in to the chief accountant for this case, and by him compiled into the statistics in the exhibits. Mr. Hamilton testified he thought them correctly made, but no man who made any of them was introduced; none of the reports themselves were in-

troduced, merely the summary of them worked out in percentages entered into the exhibits; and far more than half the total expenses are divided by the time studies alone, to say nothing of the numerous tests, special counts, etc., made for the purposes of this case. It seems useless to cite authority that such evidence is incompetent and that no decree can be based on it, but as the time studies are insisted upon, your attention is called to the law on the subject.

It does not come within any recognized exception to the Hearsay rule. These "Time Studies" and special statistics do not constitute entries required to be made in the due course of business by these plaintiffs, nor are they reports required by law to be made by these plaintiffs to any of the agents of state authorities. They are merely the conclusions of the agents of the plaintiff, taken with the view of use in this particular litigation and for the purposes of this case only.

No opportunity was afforded the defendants to cross-examine those who made these studies or reports, either to determine the accuracy and completeness thereof, or to determine the method employed by them in arriving at the results obtained, or whether they were acting under direct and explicit instructions from superior officers or agents, or to determine any other matter which might have become relevant in the course of their examination.

The court is asked to accept these reports as absolutely accurate, complete and true, to consider the divisions of time as therein set out conclusive, and all without the production and opportunity for cross-examination of a single witness who reaches these conclusions.

Certainly nothing could be more unfair to an adversary. It would be a wide departure from the ordinary and well established rules of evidence and no decree based on hearsay evidence should be affirmed.

The broad principles of equity demand such a course. One of the great reasons for the Hearsay rule—lack of opportunity for cross-examination—was as early as 1827, tersely stated by Mr. Jeremy Bentham in his Rationale of Judical Evidence, b. VI. c. I, sec. 2, as follows:

"In every instance that inferiority in respect of

probative force, in consideration of which the term Makeshift (i. e. Hearsay) was found applicable with equal propriety to them all, will be seen to have for its cause the absence of one of the principal securities for correctness and completeness, viz: interrogation *ex adverso* at the hands of a party whose interest, in the event of its being incorrect or incomplete, may in proportion to that incorrectness or incompleteness be made to suffer by it."

Chief Justice Shaw, in *Warren v. Nichols,* 6 Metcalf 261, stated the rule as follows:

"The general rule is that one person cannot be heard to testify as to what another person has declared in relation to a fact within his knowledge and hearing upon the issue. It is the familiar rule which excludes hearsay. The reasons are obvious and they are two; first, because the averment of fact does not come to the jury sanctioned by the oath of the party on whose knowledge it is supposed to rest; and secondly, because the party upon whose interests it is brought to bear has no opportunity to cross-examine him on whose supposed knowledge and veracity the truth of the fact depends."

Without opportunity for cross examination it is impossible for the adverse party to bring to light for the information of the court any sources of error, inconsistency or incompleteness that might exist in these reports which were made the very basis for the conclusions reached by the accountant.

Such evidence as this should be rejected by a court of equity upon its own motion. It should not form the basis of any decree against these defendants. There is no authority —either in law or equity—for receiving and giving consideration to such evidence as this.

A fortiorari, it should not be the basis for invalidating the action of a state, through its General Assembly and its Railroad Commission.

In the case of *Monarch Mfg. Co.* v. *Omaha B. & S. Ry. Co.,* 127 *Iowa* 571, 103. *N. W.* 493, the Supreme Court of Iowa held:

"Records of daily observations of temperature and precipitation, voluntarily made by a railroad agent and his clerks, and not preserved by any requirement of law or of the railroad company, nor verified by the person making them or otherwise, are not admissible to show weather conditions."

In *Reilly* v. *Freeman,* 82 N. Y. S. 929, 84 App. Div. 433 it was held:

"Upon an issue as to the value of the property of a corporation the minutes of the corporation containing the report of an expert employed at the time of its organization to examine and report on the value of the property were inadmissible."

In *Powell* v. *Northern P. R. Co.,* 46 *Minn.* 249, 48 *N. W.* 907, it was held that an *ex parte* order requiring the defendant to produce for the inspection and use of the plaintiff as evidence, certain reports in writing made to the defendant at its request as to facts and circumstances of an accident which was the foundation of the suit, was properly vacated, since such reports were necessarily but narrations or recitals of past events, were in the nature of hearsay, and could not be used as evidence of such events.

The defendants could not have compelled the production, nor could they have used these reports ,against the plaintiffs in this case. They were not records required to be kept in the line of duty by these agents and employes, but were in their very nature self-serving and hearsay.

In *Insurance Co., of North Amer.* v. Guardiola, 129 U. S. 642, it was held that reports of agents employed to ship sugar, which reports were not part of the shipping transaction, were incompetent, either in themselves, or in corroboration of the testimony of the agents, to prove the facts recited therein in a suit by the principals against third persons.

In the case of *United States* v. *Corwin,* 129 U. S. 381 the court held:

"In an action against the sureties on a contractor's bond to the United States to recover damages suffered

by reason of the non-fulfillment of the contract the burden of proof is on the U. S. to show a demand upon the contractor for performance and his failure and refusal to perform; and a statement of such non-performance, demand, failure and refusal, made by an officer of the government in the line of his official duty in reporting them to his official superior, is not legal evidence of any of those facts."

In the body of the opinion the court says:

"It is contended by the counsel for the government that this assertion, being in the official communication of the Chief Quartermaster of the Department of Texas, is itself sufficient and competent evidence of the fact. We do not think that the authorities cited support the proposition. They present applications in various instances of the well established rule that official reports and certificates made contemporaneously with the facts stated, *and in the regular course of official duty*, by an officer having personal knowledge of them, are admissible for the purpose of proving such facts. Manifestly the design and meaning of this rule is not to convert incompetent and irrelevant evidence into competent and relevant evidence simply because it is contained in an official communication. Had the officer been testifying under oath, such an assertion would have been excluded as inadmissible, upon the ground that *the statement itself implied the existence of primary and more original and explicit sources of information. Clifton v. U. S.*, 4 How. 242, 247; 1 Taylor Evidences Secs. 391, 394; 1 Greenleaf Ev. Secs. 82, 84. The courts hold this rule, which has been invoked, to be limited to only such statements in official documents as the officers are found to make in the regular course of official duty. *The statements of extraneous or independent circumstances, however naturally they may be deemed to have a place in the narrative, is no proof of such circumstances, and is, therefore, rejected, 1 Taylor Ev. Sec. 705; U. S. v. Buford*, 3 Pet. 12."

If the official report of an officer of the United States government not made in the regular course of official duty

is inadmissible to prove the facts contained therein, how then may this court accept, as accurate, true and complete, these reports by the agents and employes of the plaintiff, made outside the line of their duties and used as the basis for the conclusions of the accountant?

See also the cases of *Bronson* v. *Leach*, 42 *N. W.* 1; *Freeborn v. Smith*, 2 *Wall* 160, 178; *Dwyer v. Dunbar*, 5 *Wall* 318; *Glenn* v. *Liggett*, 47 Fed. 473.

Evidence of a witness derived from written memoranda of another is hearsay.

*Traber* v. *Hicks*, 131 Mo. 180, 32 S. W. 445.

*Young* v. *Miles*, 20 Wis. 615.

*Hibbard* v. *Mills*, 46 Vt. 243.

The case of *Hegler* v. *Faulkner*, 153, U. S., 109, contains a full discussion of the inadmisability of records other than judicial and the hearsay nature of testimony based thereupon. The principle announced therein exclude from consideration the Time Studies.

Respectfully submitted,

JOSEPH M. HILL,

Special Counsel for the State of Arkansas.

# ROWLAND ET AL., RAILROAD COMMISSIONERS OF THE STATE OF ARKANSAS, *v.* BOYLE, ADMINISTRATOR OF BOYLE, AND THE ST. LOUIS & SAN FRANCISCO RAILROAD COMPANY.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF ARKANSAS.

No. 252. Argued February 24, 25, 1916; restored to docket for reargument June 12, 1916; reargued May 1, 2, 1917.—Decided May 21, 1917.

Giving weight to the opinion of the District Judge who tried the case, this court upon reviewing the evidence agrees with his conclusion that, as applied to the appellee railroad company, the two-cent passenger rate fixed by the Arkansas legislature, and freight rates fixed by the Arkansas Railroad Commission, are confiscatory.

An objection to evidence as hearsay is too late if not taken when the evidence was introduced.

While this cause was pending in the trial court, the appellee railroad company, for the purpose of allocating its expenses to intrastate and interstate freight and passenger traffic in Arkansas, caused minute and specific reports to be made by its employees of all facts that would throw light upon the problem in accordance with prescribed formulæ and introduced the results in evidence, exhibiting the work-sheets and other data to the appellant Railroad Commissioners, who had opportunity to question them and call for further investigation. *Held*, that the returns were made by the employees in the course of their business and that an objection that the evidence was hearsay could not in justice be entertained. *Held*, further, that the two months of investigation afforded a basis for argument as to constant conditions.

The possible inaccuracy of apportioning general road maintenance expenses between freight and passenger service by engine-ton-miles—considered and *held* not to affect the result of this case.

Whether adoption of the low rates fixed by the State would be followed by increased intrastate traffic and revenue—*Held*, too remote and conjectural a matter to disturb the conclusion.

222 Fed. Rep. 539, affirmed.

THE case is stated in the opinion.

*Mr. Joseph M. Hill* and *Mr. S. P. Freeling* for appellants.

*Mr. S. T. Bledsoe* and *Mr. John M. Moore*, with whom *Mr. W. F. Evans* was on the briefs, for appellees.

MR. JUSTICE HOLMES delivered the opinion of the court.

This is a bill in equity originally brought by Wilbur Boyle as a stockholder in the Railroad Company, now one of the appellees, to prevent it from paying, and the Railroad Commission of Arkansas from enforcing, freight rates established by the latter, and a two-cent passenger rate fixed by a statute of 1907, on the ground that both were confiscatory. A temporary injunction was issued, freight rates were adopted higher than those established by the State Commission and the three-cent passenger rate previously in force was restored, a bond being given for keeping accounts and refunding the difference if the final decision should uphold the action of the State. Later by agreement the experiment of a two-and-a-half-cent passenger rate was tried for eighteen months, and the final hearing of the cause was postponed to await the decision of *Allen* v. *St. Louis, Iron Mountain & Southern Ry. Co.*, 230 U. S. 553, in which the same rates were before the court. That decision was rendered on June 16, 1913, and forthwith after that and the others reported in 230 U. S., there was a conference of railroad managers and officials, engineers and others competent to aid, for the purpose of devising formulas for the division of expenses, etc., between local and interstate business in accord with the views of this court, as a step toward determining the constitutionality of this and other rates sought to be imposed by the States. The Railroad Company then made

a laborious attempt to apply the formulas thus reached, and as a result the injunction was made perpetual subject to a change of circumstances, after a careful discussion by the District Court. 222 Fed. Rep. 539.

The value of the railroad property for the years 1910–1913 was admitted. The question in dispute is the usual one of the division of expense and income between state and interstate business. The decision below explains in greater detail than it is necessary to repeat the method of investigation adopted by the Railroad. For the months of November and December, 1913, it caused the most minute and specific reports to be made of all the facts that, by the formulas prepared, would throw light upon the problem to be solved. Such an investigation is too expensive to be kept up for more than a limited time, but evidence was offered to show that the figures for the two months reflected the previous years as to the material proportions, so far as was possible to judge from the returns previously required by the State.

In establishing local rates a State must be assumed to intend to confine its action within the limits set by the Constitution and not to seek an unjust advantage from the difficulties of dividing income and expense to which we have referred, but in this case the appellants have contented themselves with a purely negative attitude. There is made even a preliminary objection that the evidence is hearsay. We have not observed that the objection was taken when the evidence was introduced and if not it would be too late. *Diaz* v. *United States*, 223 U. S. 442, 450. But it is enough to say that the Railroad adopted the only practicable mode of presenting its results, that it exhibited its work-sheets and data to the appellants, that the returns were made by the employees in the course of their business and that if the appellants had desired to question any of the data they could have called for further verification. It seems to us that technical rules are sat-

isfied and that justice plainly requires this objection to be set aside.

We hardly can avoid approaching the discussion of the merits in the light of a few facts indicating that the probabilities are on the Railroad's side. Weight naturally attaches to the opinion of the judge who heard the case. Apart from that, it is not to be forgotten that this same Commission, with others, recognizing the incongruity between the local passenger rates and those in force between different States, applied to the Interstate Commerce Commission to have the latter changed; that the Commission found that the three-cent rate was not shown to be unreasonable and that it dismissed their petition, reminding them that the adjustment properly should come not from the United States but from themselves. *Corporation Commission of Oklahoma* v. *Atchison, Topeka & Santa Fe Ry. Co.*, 31 I. C. C. 532. The average haul in Arkansas is shorter than the average of the road, the density of traffic is less and the maintenance of the road is more expensive. We are aware that there is some contradiction upon this last point but we have no doubt of the fact that the cost is greater in Arkansas than the average cost of the line.

We do not propose to follow the arguments that have been addressed to us into the elaborate tables of figures. We are satisfied in the main with the discussion that they received below and shall refer only to one or two details that seem to need mention, without discussing the merits or demerits of the formulas. We are of opinion that the Railroad has shown successfully the state rates to be confiscatory and that even if some errors are detected they are not enough to change the result. We agree with the District Judge that the two months of investigation afforded a basis for argument as to constant conditions. We agree that it is proved that the local expenses are proportionally very much greater than the interstate.

In fixing the exact rates it may be that mistakes were made. Perhaps the most important doubt is raised by the fact that the Railroad apportioned the cost of maintaining tracks and track structures, so far as not definitely assignable, between freight and passenger service on the basis of engine ton miles (the weight of the engine in working order multiplied by the distance it moves in the one service or the other). This criterion, although upheld by the court below, is not regarded as certainly the best by the Interstate Commerce Commission. *Western Passenger Fares*, 37 I. C. C. 1, 13. It gave for the test period 51.19 per cent. to freight and 49.31 to passenger, whereas the Commission's figures gave a larger percentage to freight. The result of a difference of eleven per cent. would be to convert the deficit alleged by the Railroad and found by the court below in intrastate returns into a profit of less than 1 per cent. upon the agreed valuation. But the extent of the error, if any, is doubtful, and neither that nor any other possible errors would turn the scale.

The Railroad, after getting the actual returns at the three-cent and two-and-a-half-cent passenger rate and the freight rates allowed by the court, deducted the sums necessary to bring the revenue down to what it would have been had the state rates been followed. It is objected that this does not allow for the increase of travel that would follow the reduction. The Railroad replies and the court below found that the increase is mainly at the expense of interstate revenue when the combined local rates are less than the interstate one. Whether this exhausts the matter or not we are of opinion that upon this record the supposed increase is too conjectural properly to affect our conclusion. The direct effect of the reduction is plain—the remote one is at best a guess.

Light is thrown upon the position of the State by the decision of the Interstate Commerce Commission in *Memphis* v. *Chicago, Rock Island & Pacific Ry. Co.*, 39

I. C. C. 256, 265: "The present unduly low rates within Arkansas are due at least in part to the attempt by the Railroad Commission of Arkansas to protect Arkansas shippers and build up Arkansas jobbing centres." In that case it was intimated that the carriers would be required to remove discriminations resulting from the unduly low rates, as was done in the *Shreveport Case*. *Houston, East & West Texas Ry. Co.* v. *United States*, 234 U. S. 342. Upon the whole matter we are of opinion that the decree below was right and it is affirmed.

*Decree affirmed.*